

The IRON AGE

August 22, 1957

A Chilton Publication

The National Metalworking Weekly



**What Makes
A Good Tool Trouble
Man? P. 99**

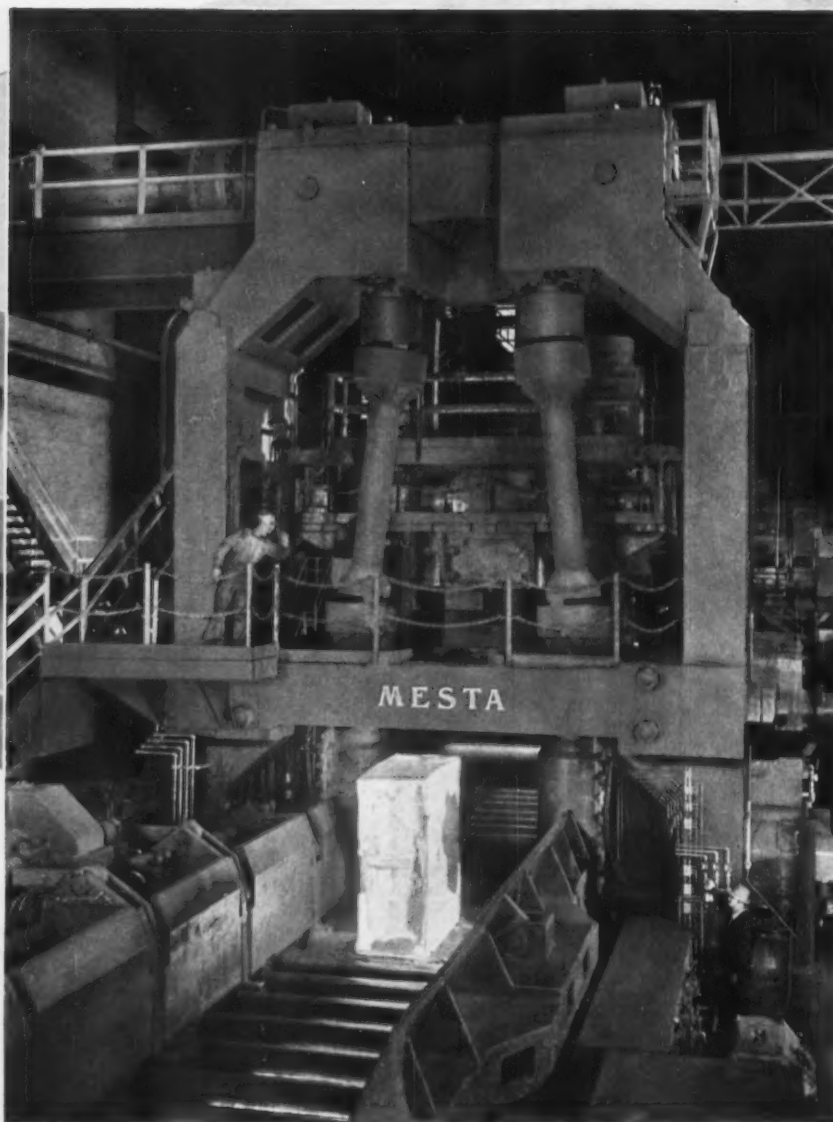
**A Lake Port Gets Set
For The New Seaway — P. 59**

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Plan Ahead For Delivery P.144**

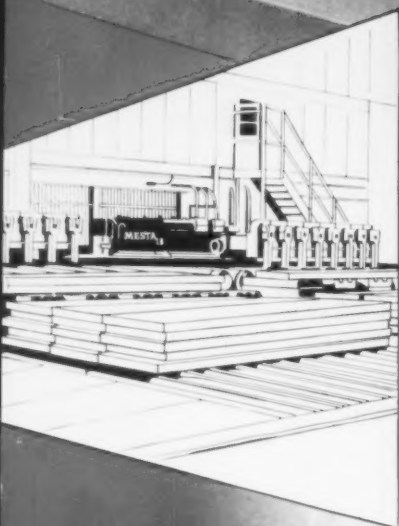
Digest of the Week P. 2-3

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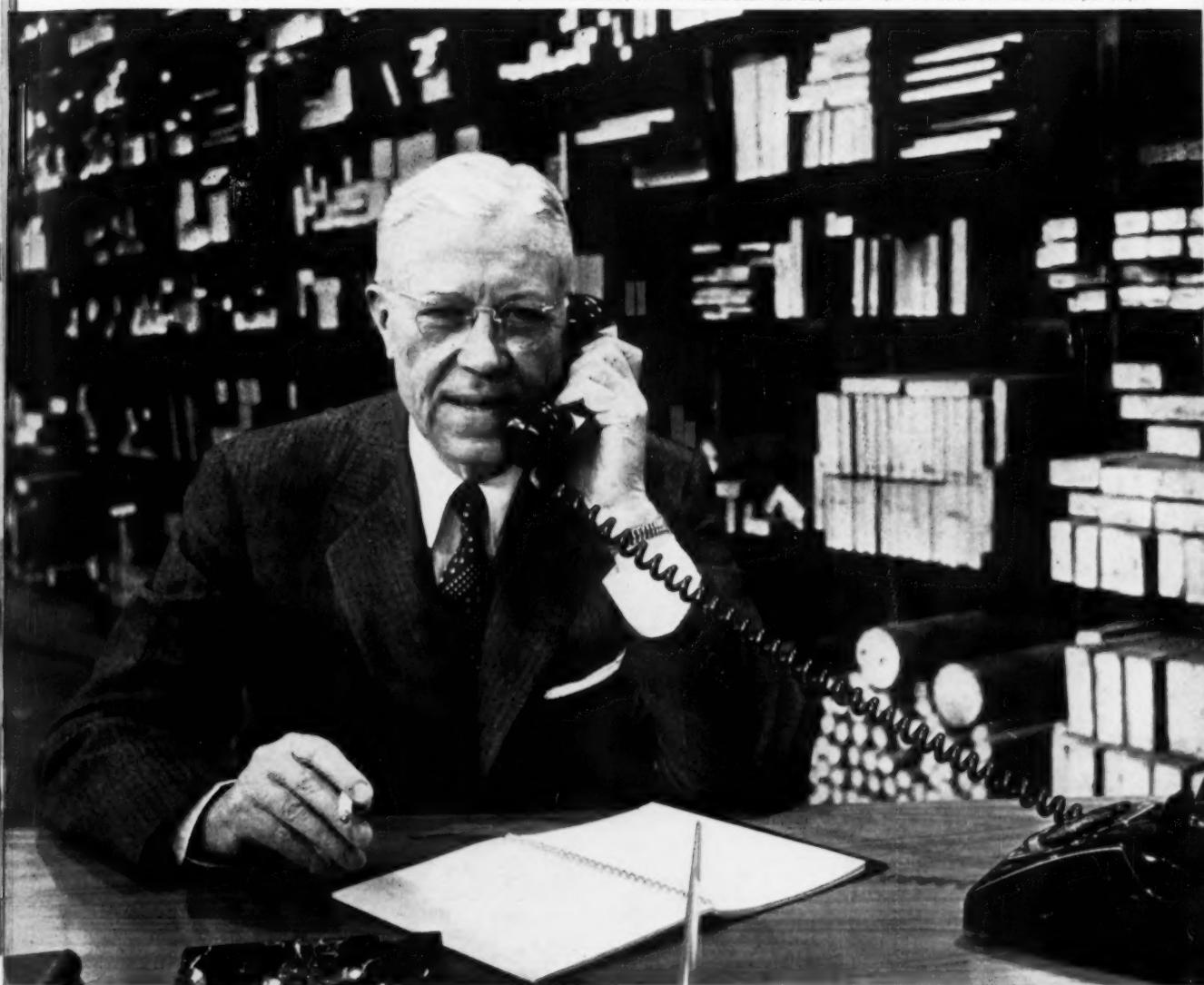
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Tool Steel Topics

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Whatever the problem, it calls for expert opinion, and that's where your Bethlehem tool steel distributor comes in. For he's a specialist in tool steel matters, and it's part of his job to see that your questions are answered promptly and courteously. Besides, he can also save you time when you need tool steel, for his diversified stocks are ready to go at

a moment's notice. Make it a point to check with your Bethlehem distributor often. It will take but a few minutes at most, and it's one of the wisest moves you can make.



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SHerwood 8-2000

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NEWS ARTICLES

TOLEDO GETS SET

On The Line—This is the story
of how a Lake Erie community is



preparing for the opening of the St.
Lawrence Seaway. Toledo is putting
hard work and hard cash on the
line for an expected growth in
shipping. P. 59

METAL FINISHING

Dip Plating — Precious metals
firm has developed a new process
to gold plate without electric cur-
rent or special equipment. Im-
proved finish and other advantages
are claimed by developers. P. 61

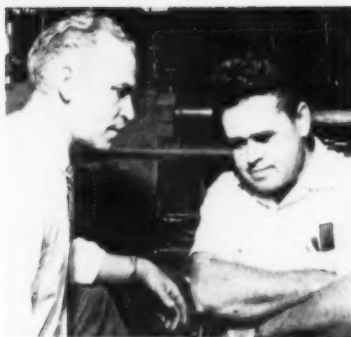
STEEL PRICE HEARINGS

Fight With Facts — Charts and
figures can be potent weapons.
Here's how U. S. Steel Corp. used
them to advantage at Senate hear-
ings on steel prices. It represents
a good case history on how to fight
with facts. P. 64

TAX CUT PLANS

Getting Attention — House and
Senate members, wooing voters in
'58, are planning an early start

in Metalworking



FOR FAST ACTION: Chrysler's tool trouble man John Danko, right, talks things over with Service Coordinator James Unis. When machine failures do occur Danko knows how to act fast and get things done. It takes a well grounded man to tackle the tough jobs under pressure. P. 99

next year on tax-trimming measures. Some favor Sadlak bill which would pare maximum rate for business and individuals to 42 pct in 5-year span. P. 81

AUTO HORSEPOWER

Converted to Comfort — All of an engine's rated horsepower isn't converted into speed. Up to 25 pct is used or lost before a car even starts. Accessories account for a large percentage of that loss. Ratings are obtained by running a bare engine in the lab. P. 76

FEATURE ARTICLES

EXHAUST INGOT FUMES

With Traveling Hood — With a single hood opening, the exhaust system can be 100 pct effective without having to set up separate hoods for each location. The exhaust hood travels right with the ladle. It can do the job at low operating and maintenance expense. P. 102

SURFACE TREATMENT

Two Tanks Replace Ten — It's done by the quick cycling of different solutions in the same tank, instead of using successive tanks. It's a new approach to the surface treatment of aluminum parts. P. 104

ONE-MAN FURNACE

Five Heat Treating Jobs — An automatically controlled furnace is

the key to a versatile heat treating setup. The work done includes atmosphere annealing, straight hardening, case and through-carburizing, and carbo-nitriding. P. 106

ASPHYXIA

Stress Equipment—A good preventive program is important, but when asphyxia strikes, the proper equipment may save a life. It takes careful planning by management plus attention to the training of employees. P. 108

BETTER MACHINABILITY

By Adding Copper To Steel — Controlled amounts of copper in cold drawn steel bars boost machinability and improve wear and corrosion resistance. P. 112

MARKETS & PRICES

ALUMINUM PIPE

Woos The Farmer—Aluminum pipe producers are beating the drums for their product for use on farms for sprinkler irrigation systems. Shipments have been moving up steadily. P. 62

NEXT WEEK

COMMUNICATIONS

How to Build Them—Breakdown of communications is blamed for many bad management decisions. Next week's Survey Report to Management shows what companies are doing to build and maintain systems. National Steel photo.

ALUMINUM HOUSING

Gaining Ground — Aluminum's big pitch to the home building market, while meeting a few bumps, is moving ahead rapidly. Alcoa is going carefully into the field, winning good will. P. 66

PORTABLE GENERATORS

Pack Market Potential — The heavy duty portable electric generator looks like a good sales bet for next two years. It takes care of peak load problems, can aid in servicing fringe areas. P. 68

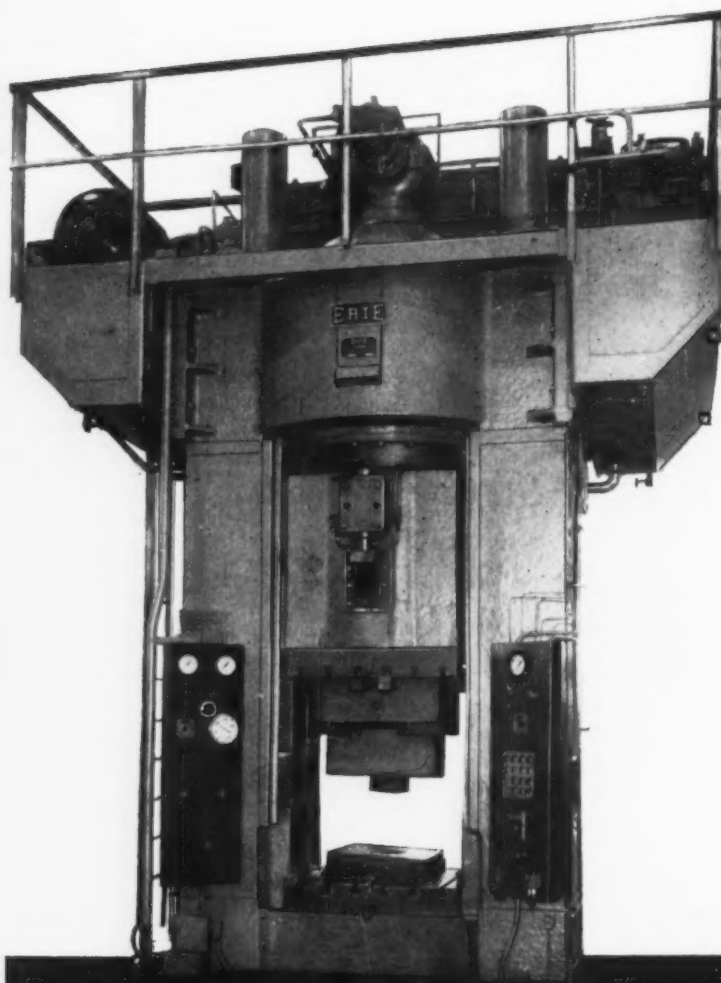
PRESS SELECTION

Mechanical or Hydraulic—You can still start a good debate over the relative merits of both types of presses. The question came up at a Fabricating Machinery Hydraulic Conference. There were lots of opinions. P. 85

STEEL ORDERS PICK UP

Getting Ready—A flurry of new orders in late August means the stage is being set for a strong fall upsurge. Users are protecting their inventories and insuring themselves against effects of upturn in automotive buying. P. 143





ELECTRO-MAGNETIC CONTROL

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press:	adjustable from 0" to 52" per minute
slow return:	adjustable from 0" to 52" per minute
fast return:	360" per minute
hydraulic components:	Oilgear with Raytheon Servo-control

The Erie Foundry Hydraulic Forging Press was specially designed for no-draft non-ferrous forging. Modifications of this rigidly built, self-contained machine can be supplied to your forging requirements. For more information, please write.

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THE IRON AGE, August 22, 1957

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Depression Complex: It's Still With Some Of Us

We don't have to be a pollyanna to keep from being a pessimist. Anyway, there are worse things than being a pollyanna.

Economists and businessmen are busily scanning the economic skies. They are looking for storm signals. Some think they see serious ones. In short, they feel we are in for a recession, a serious dip, a minor depression or whatever you want to call it.

But just as many other industrialists and economists see no grounds for undue worry. They doubt that a recession is coming soon and they certainly see no depression.

Now how about this? Who is the closest to what may happen? Much of the current discussion is a matter of words—not facts.

To some, a recession is a drop of five pct from a week ago. To others a recession is a continuous but slow leveling off in business. The latter often produces a recall of anxieties which became deeply imbedded in some people's minds years ago.

But there is an increasingly large group of business people whose memory of a depression is nonexistent or at least foggy. As a rule they

have no "recall." The fact that they don't have it gives them a sense of security; something their older confreres don't always have. This sense of security which some younger businessmen have often scares the daylights out of the ones who were singed in the 1930's.

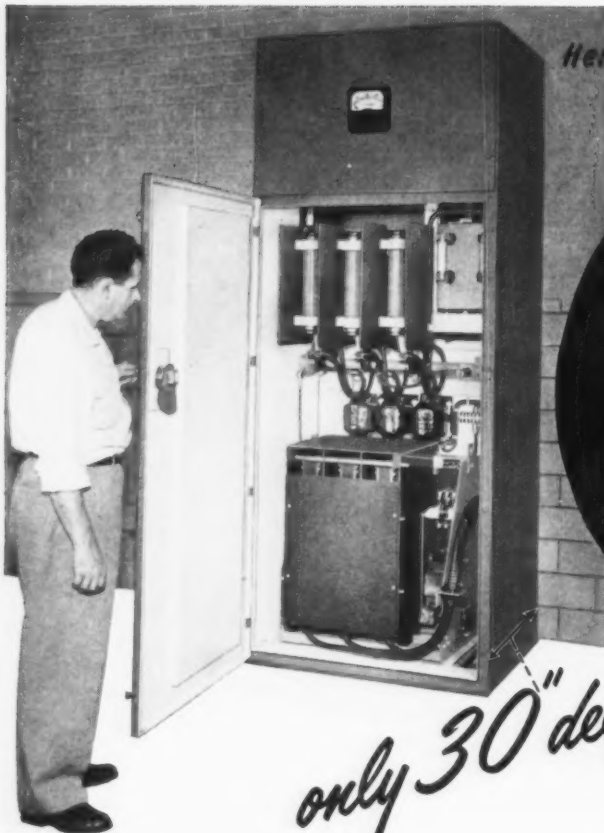
Besides those with recall and without recall are those who see the future as a challenge no matter what happens. They know all low points are left behind; they also know that all high points often are starting points for declines. For the long pull they know everything works its way upward.

As a group we may be too subject to the alarms, phobias and complexes that are brought on, not by actual business conditions but by fears of what might happen. We can take care of most anything once we see it. It is the fear of what might happen that scares some of us.

In reacting to conditions in the months and years ahead, let's separate the facts from the fears. The sooner we get rid of the depression complex the better job of planning we can do. And the better chance we have of facing up to any serious but temporary conditions that will arise from time to time.

Tom Campbell

Editor-in-Chief



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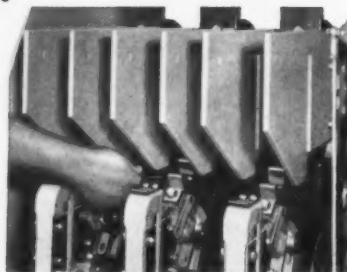
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LETTERS FROM READERS

The Tax Man Cometh

Sir—I had a lot of fun reading your article "When the Tax Man Comes" (July 18, p. 74). As yet he has not called recently.

I have been thinking that someone like Tom Campbell could write a very nice joshing editorial suggesting that the Internal Revenue Department give some form of merit award similar to the Navy "E" to all people who reach a certain level of tax payment. They could then award annual service stripes or bars to add to the original award for each year the tax payments increased. After all, we do work most of the time for the government, and some recognition should be given to those doing a good job.—(Name withheld for obvious reasons—Ed.)

"Short Term Squalls"

Sir—Your editorial in the August 1st issue impressed us very favorably, and we take this opportunity to compliment you on same.

We wonder whether you have given any consideration to making up reprints, and if so, we would like to get 250 copies.—W. P. Knecht, District Sls. Mgr., Universal-Cyclops Steel Corp., Worcester, Mass.

■ Sorry, reprint supply is exhausted.—Ed.

Overworked?

Sir—In your July 25 issue I noticed an editorial written by you entitled "Social Conscience—Is It Being Overworked."

I would like with your permission to use this editorial in our company magazine the "C&LC" in the September issue.

Thank you for your kind attention.—D. L. Davis, Industrial Relations Assistant, United Engineering and Foundry Co., Pittsburgh, Pa.

Machining \$ Kudos

Sir—I just finished reading your article "How To Get More For Your Machining Dollar" which appeared in the July 25 issue. The article was extremely interesting and the information it contained will be very helpful to our parts manufacturing section.

If reprints are still available we would appreciate very much your sending us two copies, since we feel this article should become a permanent item in our Forearms file.—R. H. Wettach, Jr., Eglinton Carbide Products, Inc., Wyandotte, Mich.

Sir—Please send me nine additional copies of the article "How To Get More For Your Metalworking Dollar" (Machining Ferrous Metals).

This article is one of the few I have seen that is written from a production machining point of view, rather than theory that is usable only under ideal conditions.

Thank you.—O. B. Schrang, Gen. Foreman, Production Machine Shop, Chance Vought Aircraft, Dallas, Texas.

Sir—Congratulations on the splendid article entitled "Machining Ferrous Metals" which appears in the July 25th issue.

Machine shops all over the nation should benefit from this information.—A. S. Gardner, Ass't. Mgr., Pittsburgh Steel Co., Pittsburgh, Pa.

Success Story

Sir—You are certainly to be congratulated upon soliciting and having the opportunity to print the excellent article by Mr. Fairless. We shall very much appreciate your sending us 20 reprints.—W. B. Williams, Organization Development Administrator, The Kaydon Engineering Corp., Muskegon, Mich.

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FATIGUE CRACKS

Aircraft and Missiles

Your f.f.j. now has a new neighbor in the Chilton family of fine magazines. Brings the total to 16. Unlike humans, you have to figure out the name of the offspring ahead of time and have its early life planned in advance. The name: "Aircraft and Missiles Manufacturing." The birthday: January, 1958.

The new book will be edited for executives in the design, production and purchasing end of its industry. Research revealed urgent need for a magazine edited for these men. Famed New York industrial and magazine designer, George Samerjan, who has done much work in the past for THE IRON AGE, is designing the new job, cover to cover.

A Million Details

This week's cover story (p. 99) is about a man whose importance in industry is constantly growing. Why? Fairly obvious: As machines get more expensive it costs more to have them down for repairs. And trouble shooting is a bigger job because they're getting more complicated. Hence our decision to take you behind the scenes to tell you



R. A. Thomson, who ran "the plant of a million details."

something about the job these men do.

Preliminaries on the story began early this summer with an interview with R. A. Thomson, who recently retired as general manager of Chrysler's Lynch Road, Detroit, plant. Lynch Road has been called the plant of a million details because it makes gears, axles, brake shoes, axle housings, differential cases—in fact complete rear-end assemblies for all Chrysler cars.

Bob has a keen analytical mind, a special faculty for getting at the heart of tooling problems. Beyond this, he worked as hard as anyone in the plant and he gets along fine with people.

This background made Bob Thomson the ideal place to begin tapping 40 years of industry experience—a lot of it in the tooling area.

Next came visits to other plants where tool trouble men could offer suggestions. One of the most helpful sources was James Unis, factory service coordinator at Lynch Road. Unis, who appears at left on cover with tool trouble man John Danko, is a man who knows machinery. His job was created in December, 1956, for better coordination of all plant maintenance.

Until then plant maintenance was divided between the master mechanic's and the plant engineering departments. Unis, the first man to hold the job, is in charge of the tool room, die room, machine repairmen, pipe fitters, electricians, carpenters and janitors.

New Puzzler

We've been criticized. Puzzlers too easy; not technical, not for engineers and secretaries: How about this one? Find the volume of a general cone that will just accept a 2.0000 Spher. Dis. Bell, flush with its base. The apex angle is 45° , and the apex point is 1.2675" off the base. The straight height is 3.5000".

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ALUMINUM COILED SHEET produced to the high standards of quality and uniformity maintained by The American Brass Company is now available for prompt shipment from our Torrington Division to all points in the United States.

It is rolled on the most modern, high-speed equipment, X-ray controlled to close tolerance in gage. High-speed, electronically operated slitters give exact widths with clean edges on evenly and tightly wound coils. Latest annealing furnaces—with controlled atmosphere and temperature—provide high uniformity of metal structure to meet specified mechanical-property limits.

IN THESE WIDTHS: Maximum 28 inches
Minimum $\frac{3}{4}$ inch

IN THESE THICKNESSES: Maximum 0.064 inch
Minimum .006 inch

COIL WEIGHTS: Up to 100 lb. per inch of width
ARBOR SIZES: 4, 6, 8, 10, 12, 16, and 20 inches in diameter

ALLOYS: 1100, 3003, 3004, 5005, 5050, 5052

TEMPERS: Alloy Nos. 1100, 3003, 5005
—O, —H12, —H14, —H16, —H18
Alloy Nos. 3004, 5005, 5050, 5052
—O, —H32, —H34, —H36, —H38

FOR IMMEDIATE ACTION, call The American Brass Company Office nearest you. The American Brass Company, Waterbury 20, Conn.

5796

ANACONDA®
ALUMINUM COILED SHEET
Made by The American Brass Company

EXHIBITS, MEETINGS

Packaging & Handling Show—Oct. 28-31, Atlantic City. (SIPMHE, One Gateway Center, Pittsburgh 22.)

AtomFair '57—Oct. 28-31, New York. (Atomic Industrial Forum, 3 E. 54th St., N. Y. 22.)

Metal Show—Nov. 2-8, Chicago. (American Society for Metals, 7301 Euclid Ave., Cleveland 3.)

AUGUST

American Institute of Electrical Engineers—Pacific general meeting, Aug. 28-30, Chinook Hotel, Yakima, Wash. Society headquarters, 33 W. 39th St., New York.

SEPTEMBER

National Metal Trades Assn.—Eastern plant management conference, Sept. 8-11, Essex-Sussex Hotel, Spring Lake, N. J. Society headquarters, 337 W. Madison St., Chicago.

American Mining Congress—Metal mining and industrial minerals convention, Sept. 9-11, Hotels Utah & Newhouse, Salt Lake City, Utah. Society headquarters, 1200 18th St., Washington, D. C.

Society of Automotive Engineers—Tractor meeting and production forum, Sept. 9-12, Hotel Schroeder, Milwaukee. Society headquarters, 485 Lexington Ave., New York.

Instrument Society of America—12th annual instrument-automation conference and exhibit, Sept. 9-13, Cleveland Auditorium, Cleveland. Society headquarters, 313 Sixth Ave., Pittsburgh.

National Petroleum Assn.—Annual meeting, Sept. 11-13, Traymore Hotel, Atlantic City. Society headquarters, 958 Munsey Bldg., Washington.

Marking Device Assn.—National meeting, Sept. 19-20, Roosevelt Hotel, New Orleans. Society head-

quarters, 912 Chicago Ave., Evanston, Ill.

Steel Founder's Society of America—Fall meeting, Sept. 23-24, The Homestead, Hot Springs, Va. Society headquarters, 606 Terminal Tower, Cleveland.

The American Society of Mechanical Engineers—Fall meeting, Sept. 23-25, Statler Hotel, Hartford, Conn. Society headquarters, 29 W. 39th St., New York.

Standards Engineers Society—Sixth annual meeting on standardization—economy through application, Sept. 23-25, Hotel Commodore, New York. Society headquarters, P. O. Box 281, Camden, N. J.

Assn. of Iron & Steel Engineers—Annual convention, Sept. 23-26, Penn Sheraton Hotel, Pittsburgh. Society headquarters, 1010 Empire Bldg., Pittsburgh.

American Hot Dip Galvanizers Assn.—Semi-annual meeting, Sept. 26-27, Netherland-Hilton Hotel, Cincinnati. Society headquarters, 1806 First National Bank Bldg., Pittsburgh.

OCTOBER

The Electrochemical Society—Semi-annual meeting, Oct. 6-10, Statler Hotel, Buffalo. Society headquarters, 216 W. 102nd St., New York.

American Institute of Steel Construction—35th annual meeting, Oct. 6-11, Hotel del Coronado, Calif. Society headquarters, 101 Park Ave., New York.

American Society of Lubrication Engineers—Fourth conference, Oct. 7-9, Royal York Hotel, Toronto, Ont., Canada. Society headquarters, 84 E. Randolph St., Chicago.

Committee on Vacuum Techniques—Fourth annual symposium on high vacuum technology, Oct. 9-11, Hotel Somerset, Boston. Society headquarters, Box 1282, Boston.

BASIC SPECIALTIES BY GREFCO for the Steel Industry

GREFCO PCO (plastic chrome ore) is an air-setting material available in several mixes of varying workability. After application by ramming it develops high strength and hardness upon air-drying. After firing it develops a dense hard surface which is unusually resistant to mechanical abrasion.

GREFCO PCO's chemical composition provides excellent resistance to attack by fluxes and slags such as roll scale, open hearth slag, and coal ash. Low porosity makes it highly resistant to penetration by molten metals or slags.

MAGNEHARTH is a ramming mixture made from dead-burned magnesite grains of high magnesia content, plus chemical bonding agents. When used in the bottoms of open-hearth and electric steel furnaces, MAGNEHARTH provides a highly refractory, stable, and long-lasting hearth. It can also be used with excellent results for resurfacing old bottoms, for forming tap holes, and for hot and cold patching in steel furnaces.

Consultation with a Greco representative is recommended to be assured of the proper material for your service and conditions. He can furnish you with detailed instructions on the proper installation procedure, too.

GENERAL REFRACTORIES CO.
Philadelphia 2, Pa.



GENERAL REFRACTORIES

Extend Metal Life Under Fire

600%

WITH HIGH VACUUM



Today, vacuum melted metals are being used by leading manufacturers of aircraft engines, turbine blades, electronic tubes, ball bearings, nuclear reactors, or wherever superior performance under high temperatures is required. For instance, use of vacuum melted alloys increased ball bearing life under high temperatures by 600%.

Limitation on product performance caused by failure of critically stressed parts can be a thing of the past. Vacuum melting produces cleaner, more homogeneous metals, which have greater fatigue life, strength, ductility, and machinability. In addition to a better product, this can often mean fewer rejects and lower costs.

If you are responsible for quality control or product performance, it will pay you to contact NRC for information on what vacuum metallurgy can do for you. Benefit from our 17 years' experience gained through building and operating more vacuum furnaces than any other organization in the world. We can help you with your program of product improvement. Write today to NRC Equipment Corp., Dept. 16H, Charlemont Street, Newton 61, Massachusetts.

Reliable equipment for all your high vacuum needs



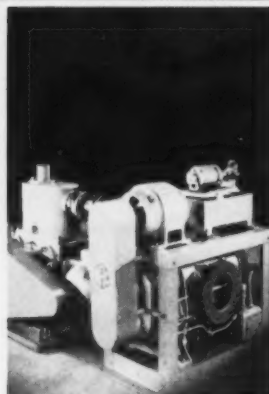
Cut pumping costs with less maintenance and greater dependability. Stainless body and non-corrosive parts facilitate cleaning and prevent corrosion. Complete size range from 1" to 16"

Write for bulletin No. DP-3.



Rugged new vacuum gauge with high accuracy over unusually wide range of 0.0001 — 1000 mm Hg. Thermocouple, Pirani, and hot wire ionization gauges available.

Write for bulletin No. G-3.



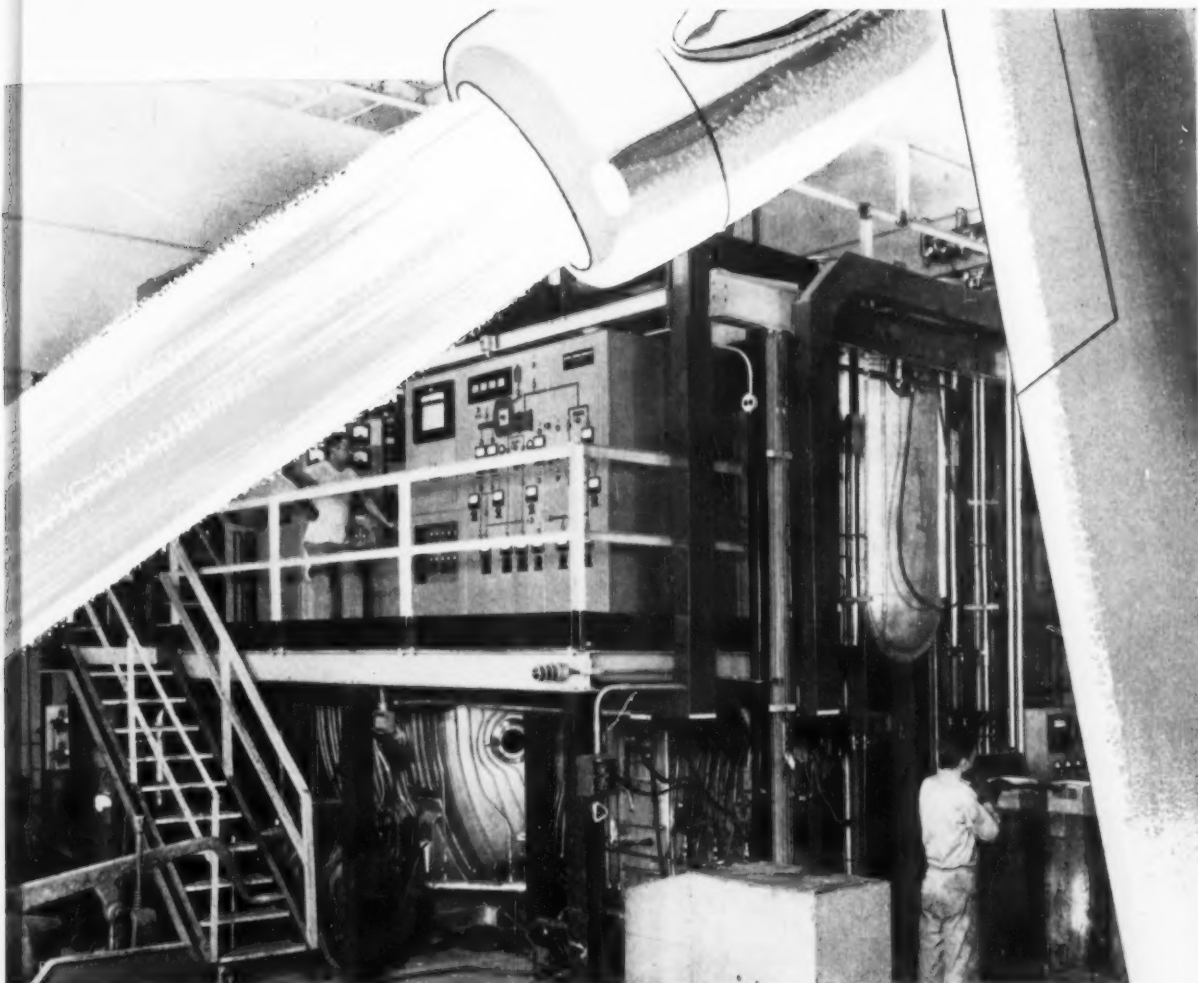
High speed vacuum pump—ing throughout entire micron range with NRC mechanical booster pumps. Especially suited for vacuum metallurgy. Capacities available from 1000 to 12,000 CFM.

Write for bulletin No. MB-1.

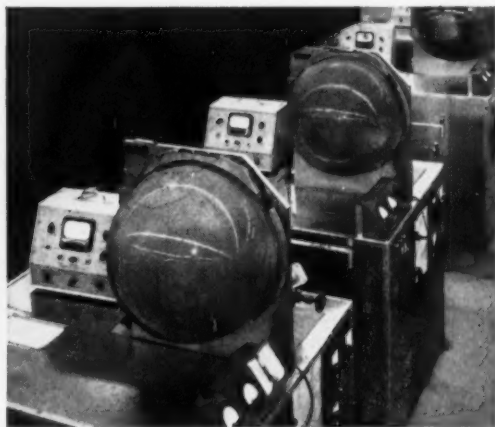


Gas content of metals determined quickly and accurately with NRC gas analyzers. Measure content of hydrogen, oxygen and nitrogen as low as 1 part per million.

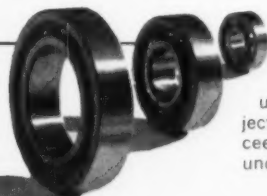
Write for bulletin No. VA-2.



Gas-free, super clean, superior ingots up to 3000 lbs. are produced in this NRC Vacuum Induction Furnace. The world's largest, this unit is installed at Vacuum Metals Corporation Division, Crucible Steel Company.



Get started easily with a research, developmental or production unit. You can choose from a standard arc, resistance or induction heating furnace with capacities from 2 lbs. to 5,000 lbs.



Increased bearing life by 600% under high temperatures. Race rejects cut 90%. Handbook ratings exceeded up to 200% for bearing life under normal temperature.



NRC

**EQUIPMENT
CORPORATION**

DEPT. 144, CHARLEMONT ST., NEWTON 61, MASS.
A Subsidiary of National Research Corporation



LAY THAT PISTOL DOWN PAL

There's an easier way out of your bearing troubles

Russian roulette may seem to be the easiest and quickest way out when bearings start to go and production starts to stop. But quicker still is a replacement from an authorized **SKF** distributor. He's the man to see for *all* types of anti-friction bearings and pillow blocks, and he's the man who will give you prompt service 24 hours a day. This factory

trained specialist is ready to help you select the right bearing for the job. His broad experience in solving problems of maintenance means *proper* guidance in protecting your bearings for longer life. Doing business with the right distributor—the **SKF** distributor—is good business and good assurance of getting the bearings you need when you need them.

7746



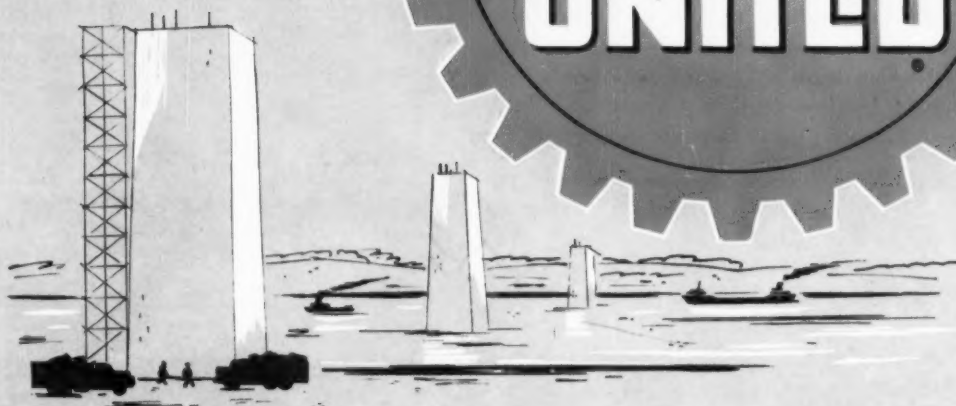
SKF

EVERY TYPE—EVERY USE

Ball Bearings
Cylindrical Roller Bearings
Spherical Roller Bearings
Tapered Roller Bearings ("Tyson")

*Reg. U.S. Pat. Off. Tyson Bearing Corporation

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.



Designers and Builders of Ferrous and Nonferrous Rolling Mills, Mill Rolls, Auxiliary Mill and Processing Equipment, Presses, and other Heavy Machinery. Manufacturers of Iron, Nodular Iron and Steel Castings, and Weldments.



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Plants at: PITTSBURGH • VANDERGRIFF • YOUNGSTOWN • CANTON • WILMINGTON

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UNITED can serve you no matter where in the world you are

CLEVELAND STANDARD HEXAGON HEAD CAP SCREWS



Extra fastener muscle for mighty earth-moving machines

Power shovels, trucks, bulldozers—all take brutal shock loads and vibration, day in, day out. To reduce repairs and downtime to a minimum, leading manufacturers of earth-moving equipment specify Cleveland cap screws with confidence. These upset forged hexagon head cap screws put extra strength into every assembly, insure customer satisfaction.

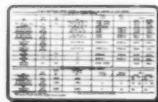
Cleveland standard hexagon heads are manufactured from various steels and in various tensile strengths. Included are extra-large diameters and long lengths. Bright and quenched and tempered steels in all standard sizes are ready for immediate delivery—alloy steels on short notice. Let our experienced engineers help you with your fastener problems. Remember, Cleveland has the most modern of production facilities and the world's largest stock of hexagon head cap screws.

TENSILE STRENGTHS OF CLEVELAND HEXAGON HEAD CAP SCREWS

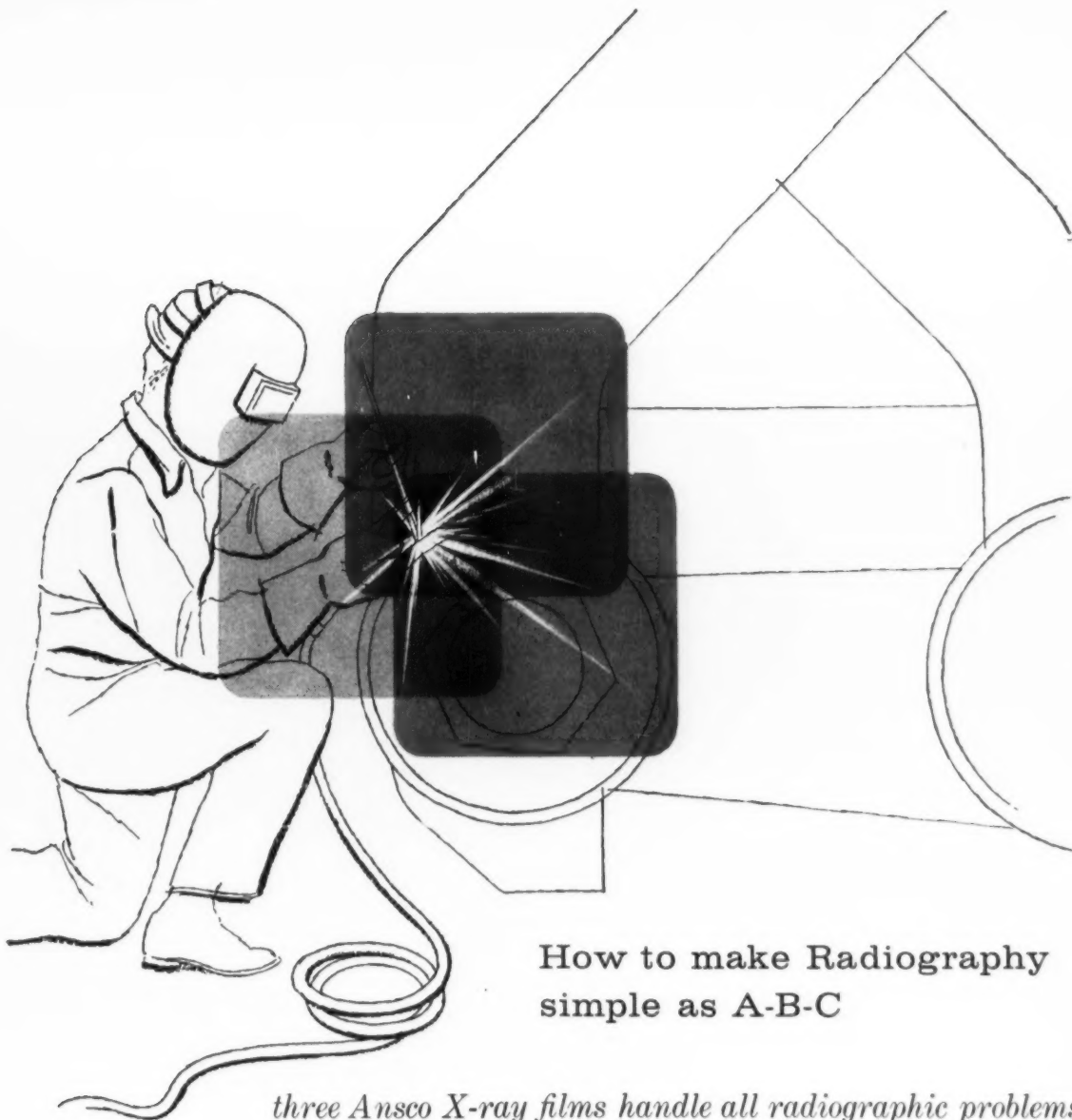
Product	Size, in.	Tensile Strength, psi
Bright	Up to ¼ incl. ½ to 1½ incl. Over 1½ to 1½ incl.	85,000—105,000 75,000—100,000 65,000 min.
Quenched & Tempered (SAE Grade 5)	Up to ¾ incl. Over ¾ to 1 incl. Over 1 to 1½ incl.	120,000 min. 115,000 min. 105,000 min.
Quenched & Tempered (SAE Grade 6)	Up to ¾ incl. Over ¾ to 1 incl.	140,000 min. 133,000 min.
Alloy (SAE Grade 7)	Up to 1½ incl.	130,000 min.
Alloy (SAE Grade 8)	Up to 1½ incl.	150,000 min.
Bright	Over 1½ to 2½ incl.	55,000 min.
Quenched & Tempered	Over 1½ to 2½ incl.	90,000 min.
Alloy	Over 1½ to 2½ incl.	125,000 min.

Note: Higher physicals, through use of selected alloys, can be supplied on special order.

GET YOUR COPY NOW — Pocket-size card giving you physical properties of Cleveland hexagon and socket head cap screws and Cleveland Place bolts.



THE CLEVELAND CAP SCREW COMPANY
4444-1 Lee Road, Cleveland 28, Ohio
WAREHOUSES: Chicago • Philadelphia • New York • Los Angeles



How to make Radiography simple as A-B-C

three Ansco X-ray films handle all radiographic problems

Superay "A"

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Precision radiography becomes an easy matter with these three Ansco films. Even with the toughest radiographic problems you'll find the quality you are seeking with one of these.

Ansco Superay "A"—Fast fine grain industrial x-ray film recommended for most industrial applications. Superay "A" will record easy-to-read images in minimum times.

Ansco Superay "B"—Extreme contrast and highest resolving power make Superay "B" ideal for high voltage work and detecting minute flaws and discontinuities.

Ansco Superay "C"—This high speed film makes short work of routine inspection, can give you dramatic savings in testing costs, time, and labor.

Ansco offers you the best industrial films . . . and chemicals . . . for every X-ray need. *Let Ansco watch over your quality.*

Ansco

America's Oldest Maker of Photographic Materials
Binghamton, New York • A Division of General Aniline & Film Corp.

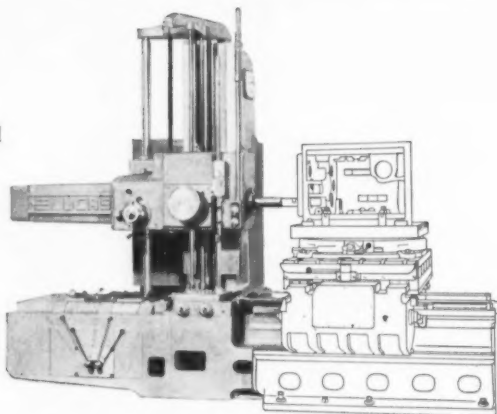
**Select
a Lucas**

**for accurate spacing
for precision boring
for heavy milling**

Your choice of controls —

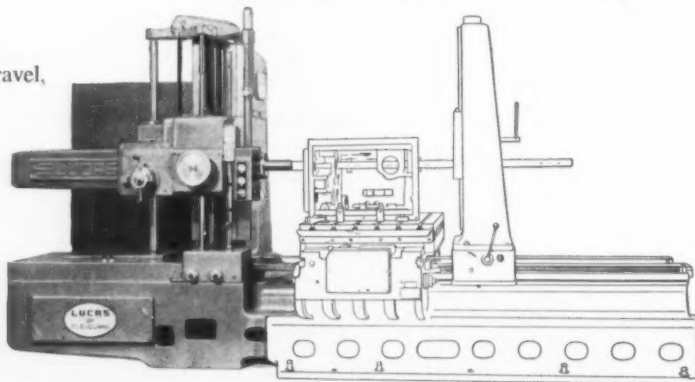
STANDARD LEVER CONTROLS

available for use with both short bed
or backrest models.



FULL PENDANT CONTROL

of feeds, speeds and directional travel,
optional on any Lucas.

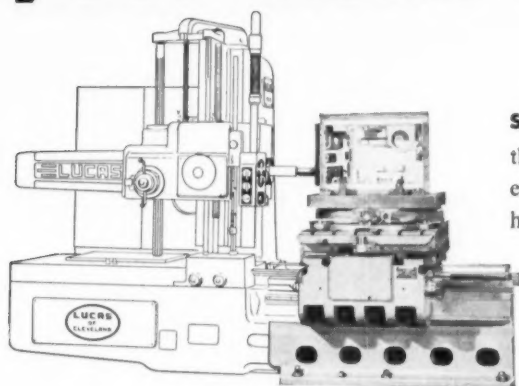


Whether you do line or stub boring, whether you prefer lever or automatic pendant control, you get the basic advantages of automatic power positioning and 4-way beds. Whichever model you

select you get the benefit of continuing design improvement, backed by 57 years of specialization and leadership in this field *plus* the full resources of The New Britain Machine Company.

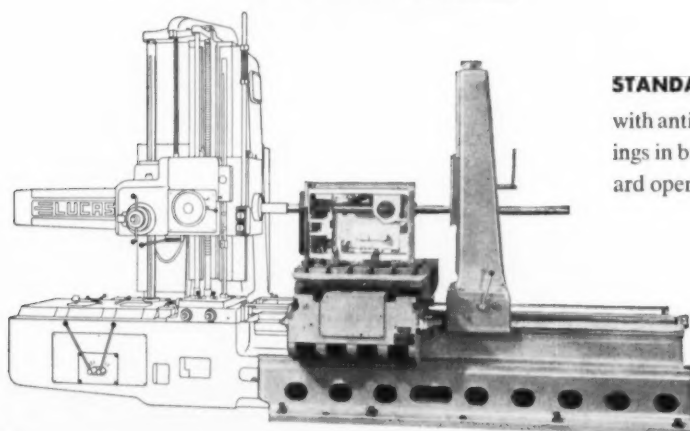
in production
 in the tool room
 in experimental work
 in engineering research
 in maintenance applications
 or several, in combination

your choice of beds



SHORT BED MODELS

the most compact and economical equipment for precision stub boring, heavy milling and horizontal drilling.



STANDARD BED WITH BACKREST

with anti-friction bearing mounted bushings in backrest block, handles all standard operations including line boring.



LUCAS MACHINE DIVISION

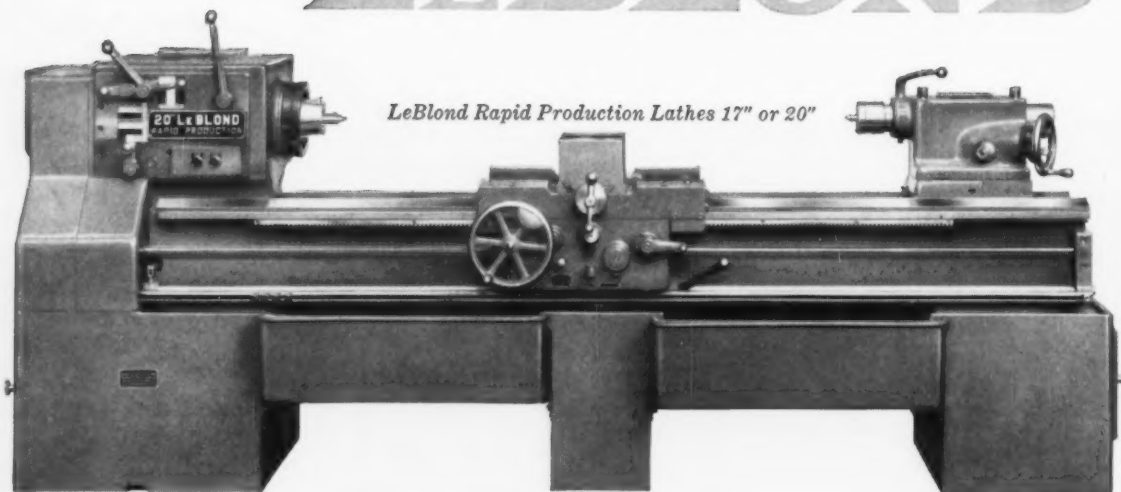
The New Britain Machine Company
Cleveland, Ohio

OTHER NEW BRITAIN MACHINE TOOLS DIVISIONS

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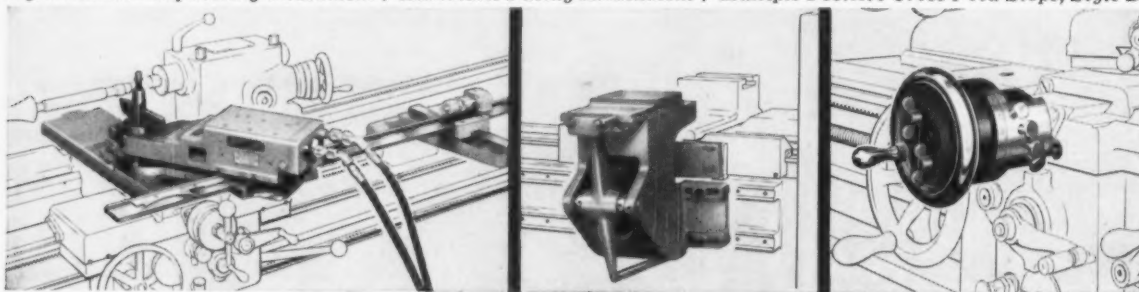
another **ALL
NEW
LeBLOND**



LeBlond Rapid Production Lathes 17" or 20"

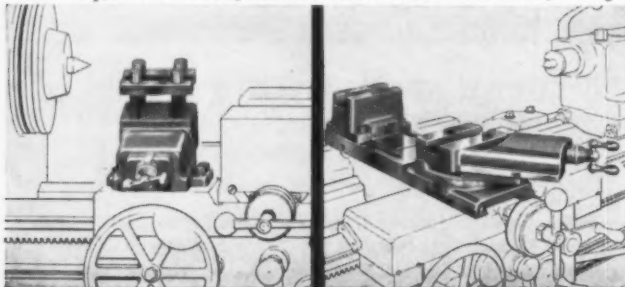
a low cost manufacturing lathe

Hydra-Trace® duplicating attachment / Automatic Facing Attachment / Multiple Positive Cross Feed Stops, Style B



with exactly the custom features you want

Full Swing Rests / Compound and Plain Connected Rest / many more useful attachments. Write for Bulletin RP-220C

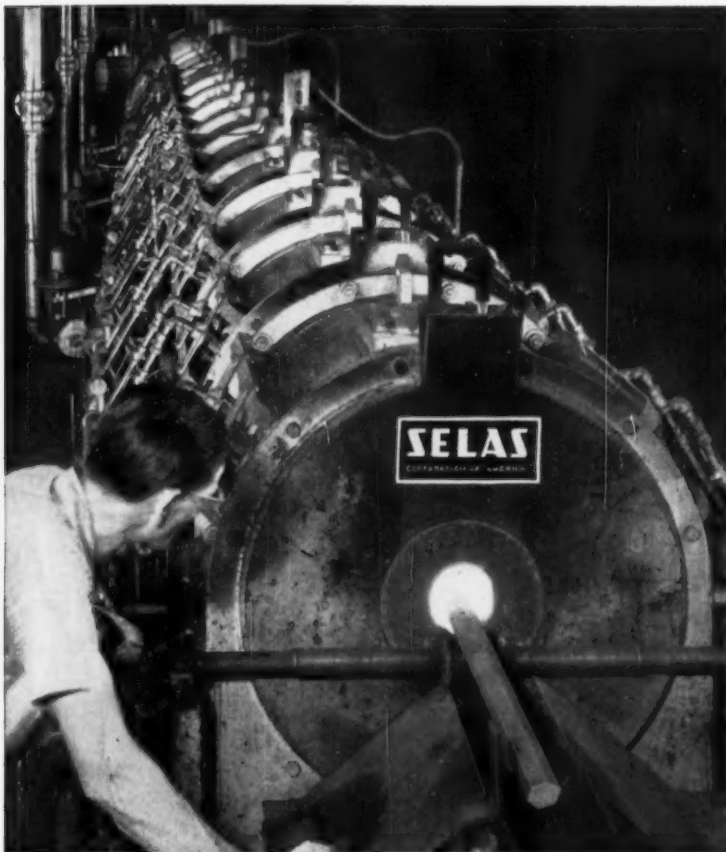


*World's Largest
Builder of
A Complete Line
of Lathes for
more than 70 years*

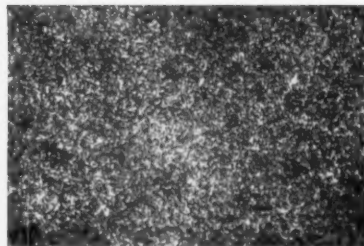


THE R. K. LeBLOND MACHINE TOOL COMPANY
Cincinnati 8, Ohio

Physical properties improved, uniformity achieved



with Selas short-cycle hardening and tempering



Photomicrograph (500X) shows structure of an AISI 4140 steel bar, hardened and tempered with Selas short-cycle heating. Yield Strength = 140,000 psi; Tensile Strength = 152,000 psi; Hardness = 32 Rc. Compare this with conventional heating methods, which for 152,000 psi T. S. produce only 115,000 psi Y. S., and to achieve the required 140,000 psi Y. S., it is necessary to go to 180,000 psi T. S., with hardnesses that introduce machining problems.

FOR a given tensile strength or hardness, Selas short-cycle hardening and tempering develops higher yield strength . . . with no sacrifice in ductility . . . in carbon and low alloy steel bars. For with Selas short-cycle heating, a higher tempering temperature can be employed (with no soaking), which enables more complete relief of residual hardening stresses.

Surface decarburization is reported to be negligible, scaling is minimized . . . even though no specially-prepared atmosphere is employed.

Selas fast heating for hardening, quenching and short-cycle tempering of bars is performed continuously, automatically. Consistent metallurgical uniformity is obtained throughout each bar and from bar to bar.

Selas barrel-furnace lines are also widely used throughout the steel industry for hardening, tempering and annealing seamless tubes; heating seamless tubes for sizing; normalizing welded pipe . . . all continuous operations.

The compact, fast heating, gas-fired furnaces save valuable floor space and are adaptable to variations in production-line speeds.

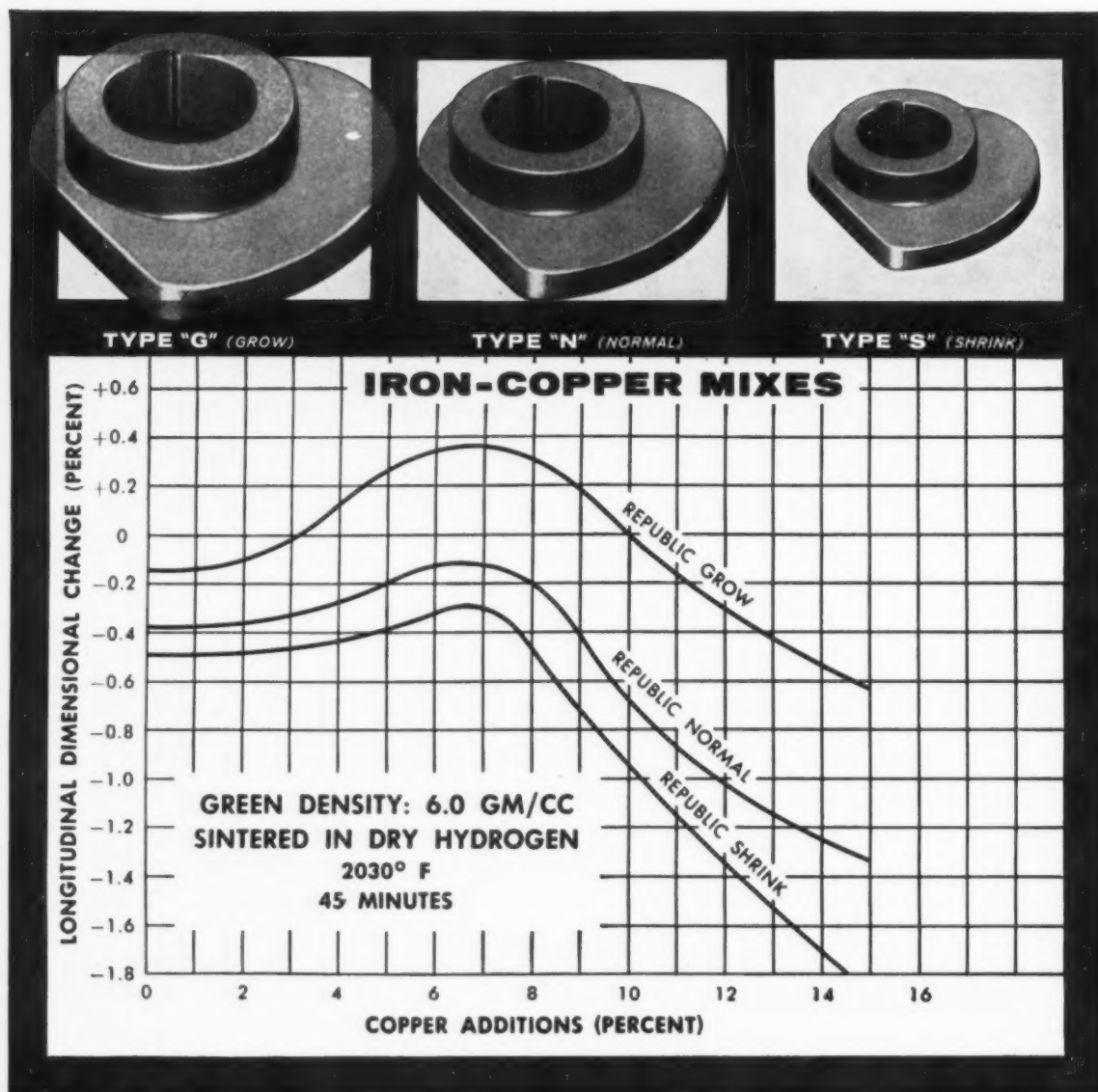
Send for informative articles on Selas tube and bar heating installations. Address Dept. 110.

SELAS
CORPORATION OF AMERICA
DRESHER, PENNSYLVANIA

Heat and Fluid Processing Engineers
DEVELOPMENT • DESIGN • CONSTRUCTION



Republic Iron Powders



REPUBLIC



World's Widest Range of Standard Steels

s with cdf

aid in establishing finish dimensions of parts

The chart, at left, shows the distinct dimensional change-characteristic that occurs when any one of Republic's three new Iron Powders—Type "G" for growth, Type "N" for normal, Type "S" for shrinkage—is blended with varying amounts of copper.

This change-characteristic is called *Controlled Dimensional Factor*—an exclusive Republic development.

All values in this chart represent the average of numerous tests conducted by Republic's Metal Powder Division in the development of these new types of iron powder. In all cases,

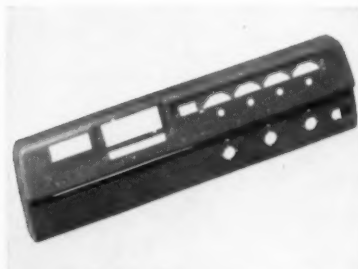
one percent zinc stearate was used as lubricant.

Republic Iron Powders with CDF can aid you in establishing the finish dimensions of parts. They can help you make better parts, reduce fabricating costs, and save on expensive die re-working.

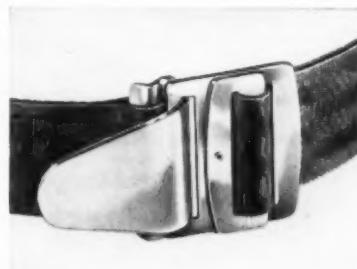
Our metallurgists and engineers will help you utilize all the advantages of Republic Iron Powder with CDF. There is no obligation. Mail the coupon to obtain their services or for more information on test evaluations, chemical compositions, and physical properties.



BETTER TUBULAR PARTS are made with Republic ELECTRUNITE® Welded Steel Tubing. Harper-Wyman Company uses it in making lightweight, easy-to-clean venturi burner tubes. The company subjects ELECTRUNITE to a hairpin bend of 1¼-diameter radius, then a four-way crimp, followed by punching, notching and welding. Uniform, predictable ductility avoids stretch and collapse as tubing is severely bent and formed. Close tolerances of O.D. and I.D. avoid die and mandrel troubles. Write for facts.



QUALITY STAMPED AND DRAWN PARTS such as this electric range control panel are produced by Republic's Pressed Steel Division. Complete service is provided from design to fabrication. Topnotch facilities, plus years of know-how and experience, assure you of the best product. Equipment is available for blanking, cold and hot forming, drawing—also for complete assemblies. We handle the heaviest gages used in industry, including carbon and alloy steel or non-ferrous metals. Write for Booklet Adv. 681.



STRONG, SAFE PARTS are fabricated from Republic ENDURO® Stainless Steel. Bunke-Musser Company uses Type 201 for this seat-belt buckle. Fabricating operations include shearing, punching, and severe bend of 175° to form the pelican hook. The company had tried carbon steel, but this required a heavier gage, chrome plating and polishing, with the end result being more expensive than stainless. Republic Type 201 provides strength, safety, wear-resistance, and workability. Write for booklet on the 200-Series stainless steels.

STEEL

and Steel Products

REPUBLIC STEEL CORPORATION

DEPT. C-3552A

3104 EAST 43th STREET • CLEVELAND 27, OHIO

☐ Send more information on Republic Iron Powders with CDF.

☐ Have an engineer call.

Send additional information on:

☐ ELECTRUNITE Welded Steel Tubing ☐ Stampings

☐ ENDURO Stainless Steels (200 Series)

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____



Simplicity Model S-200 Asphalt Plant recently delivered to Ben M. Hogan & Company, Little Rock, Ark. This is Hogan's fourth Simplicity Plant, and is producing well over 100 tons of asphalt mix per hour.

"4 times around the world—that's how far we estimate a Standard Steel ring will travel as an integral part of a Simplicity Asphalt Plant"

"In 40 years of service we estimate that a bull gear and tire on the rotating dryer drum of a Simplicity Asphalt Plant travels at least 100,000 miles to make four million tons of asphalt without defecting. These and other components of our asphalt plants are forged by Standard Steel Works.

"But we are not only justly proud of the durability of our products, thanks in part to Standard, but also of the service we render our many customers—both in terms of delivery and of maintenance. And that's where Standard Steel Works is of greatest value to us. A special delivery arrangement with Standard Steel Works, plus their personalized service, helps us maintain superior service to our customers."

Frankly, we feel we deserve this fine compliment from Mr. Whitfield. We know how important it is for *our* customers to keep *their* customers satisfied. That's why we take a special interest in their needs and keep letting our men in the shop know the importance of the role they play in helping our customers maintain a favorable competitive position.

Why not invite us to discuss your casting, forging and weldless ring needs with you. It won't cost you anything, and we can probably show you ways in which our service can save you money. Write Dept. I-H.



"About five years ago we furnished a replacement 8 ft. x 15 ft. dryer drum to a customer whose dryer had been in service on a Simplicity Asphalt Plant for 25 years. The steel tires and bull gear of the old dryer showed no signs of wear and were used in the new drum. Those rings were supplied to us by Standard Steel Works. That's why we know the quality of Standard's rings is as good as the service they render us," says Harlan Whitfield, of The Simplicity System Company, Chattanooga, Tenn.

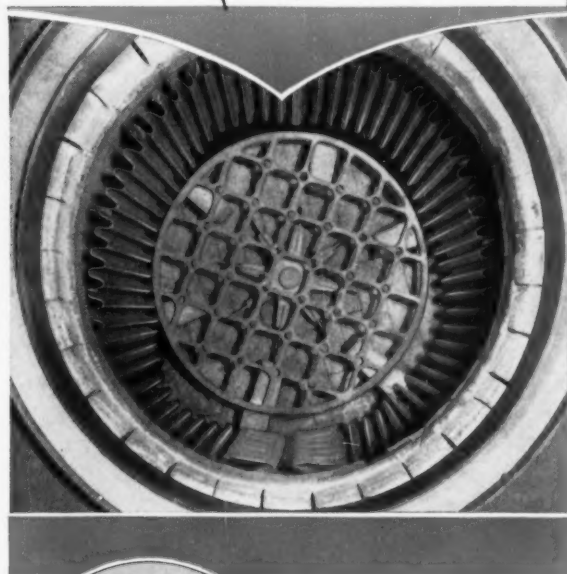
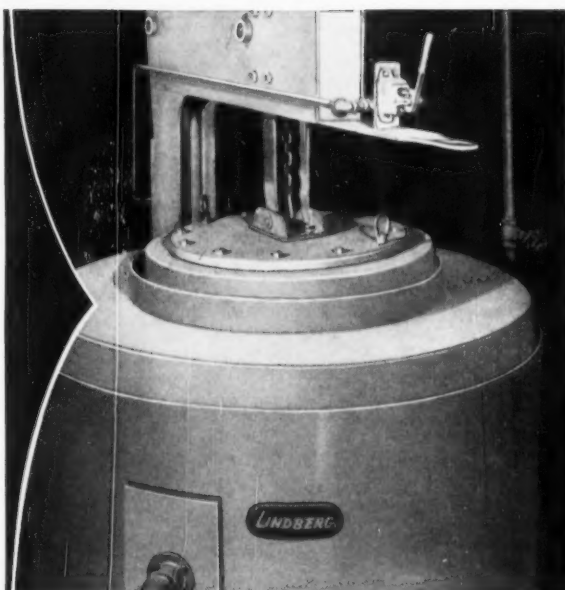
Standard Steel Works Division
BALDWIN · LIMA · HAMILTON

BURNHAM, PENNSYLVANIA

Rings • Shafts • Car wheels • Gear blanks • Flanges • Special shapes



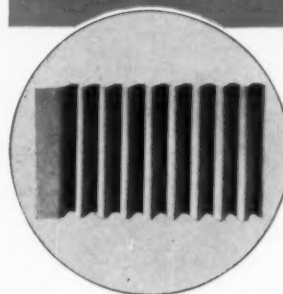
FROM THE OUTSIDE
... JUST ANOTHER
LINDBERG PIT-TYPE
CARBURIZING FURNACE
BUT LOOK INSIDE



No Retort!

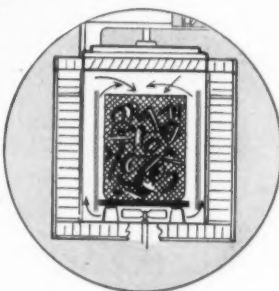
Because it needs no retort, this new Lindberg electric vertical pit-type furnace gives you these important advantages:

- Lower initial cost, no retort to pay for.
- No expensive retort replacement.
- Downtime for retort replacement eliminated.
- Increased production because it heats faster.
- Exact atmosphere control maintains work quality.
- Versatile, carbon-diffusing and requeenching along with carburizing. Adaptable to variety of work.



CORRTHERM elements operate on extremely low voltage. No leakage through carbon saturation. Shock or short hazards eliminated. No complicated mountings required. An exclusive Lindberg development.

Note how CORRTHERM elements serve as baffles to direct forced convection streams through the charge.



All this is made possible by Lindberg's new CORRTHERM electric heating element. For lower initial cost, lower maintenance costs, faster production, better quality control, why not look into this furnace. It's additional evidence that, if you're concerned with the application of heat to industry, better talk it over with Lindberg.

LINDBERG

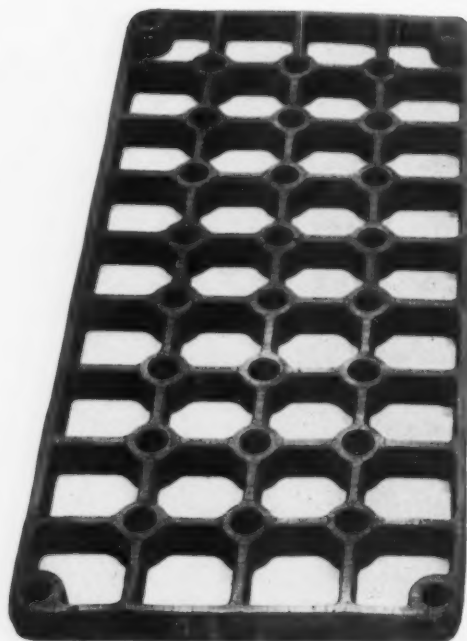
ENGINEERING COMPANY

2452 West Hubbard Street, Chicago 12, Illinois

Los Angeles Plant: 11937 S. Regentview Ave., at Downey, Calif.

Toronto Plant: EFCO-Lindberg, Ltd., 11 Front Street, East

THE TALE OF TWO TRAYS



THERMALLOY TRAY—hot acid etch made after removal from service. Note that through proper chilling and foundry practice, most cracks are superficial.



COMPETITIVE TRAY—hot acid etch after failure shows severe shrinkage and cracking. This tray was in service *less than half* as long as the Thermalloy tray.

THERMALLOY* QUENCH TRAY GIVES TWICE THE SERVICE LIFE

At a major automotive plant, two sets of quench trays were recently ordered for carburizing shafts at 1650 F. Both were of standard design. One set was cast by Electro-Alloys of Thermalloy heat-resistant alloy—the other was a competitive make.

The illustrations above clearly show the condition of the two test trays . . . after the Thermalloy trays had been in service *more than twice as long* as the competitive make. Use of chills at critical points and proper foundry technique in the Thermalloy trays accounted for their much longer service life . . . by eliminating the shrinkage evident in the

competitive tray. This test, made by the customer, clearly proved the added quality and strength achieved through the use of chills.

Whatever *your* heat-treat problem, it pays to make use of Electro-Alloys casting know-how—plus the outstanding physical properties of Thermalloy high-heat-resistant alloys.

For further technical information on Thermalloy Heat-Treat Trays, write for Bulletin T-227 . . . Electro-Alloys Division, 8018 Taylor Street, Elyria, Ohio.



*Reg. U. S. Pat. Off.



ELECTRO-ALLOYS DIVISION Elyria, Ohio



New Facilities to do a better job for you

During the past six months Levinson has been undergoing a major expansion program designed to meet the increasing demands of its customers for plain and fabricated steel.

New warehousing facilities have been acquired in McKees Rocks, Pa. and the company is in the process of adding new, modern equipment for cutting and fabricating. All of this adds up to an even better job for Levinson customers.

On your next order for plain or fabricated steel

just . . . Leave it to **LEVINSON**

Warehousers, fabricators, designers of steel for over half a century

the
LEVINSON STEEL



COMPANY

Pittsburgh 3, Pa.
Phone: HUbbard 1-3200



Meet the **BIRDSBORO** Roll Specialist...

... he comes to you backed by over a half century of metallurgical, engineering, and production experience. Birdsboro's long record of producing specialized steel, alloy iron, and alloy steel rolls stands behind him to give you individualized roll service. When you want the outstanding performance that means increased tonnage, call BIRDSBORO.

Designers and Builders of:

STEEL MILL MACHINERY
HYDRAULIC PRESSES
CRUSHING MACHINERY
SPECIAL MACHINERY
STEEL CASTINGS
Weldments "CAST-WELD" Design
ROLLS: Steel, Alloy Iron, Alloy Steel

IRON BASE ROLLS: Grainloy, Birdsboro Metal, Curoloy, Superloy, Super Curoloy.

STEEL BASE ROLLS: Diamondite, Birdsboro Special, Birdsboro "30", "40", "50", and "75".

BIRDSBORO

BIRDSBORO STEEL FOUNDRY & MACHINE CO., BIRDSBORO, PENNA. Offices in Birdsboro, Pa. and Pittsburgh, Pa.



On-the-Spot LEAK TEST

New Zyglu Portable Kit provides the most convenient and sensitive leak tests, on-the-spot and in-place. For process tanks, liquid lines, tank weldments during fabrication, on cast housings, etc. Just spray Zyglu Penetrant on one side, as in this weld test.



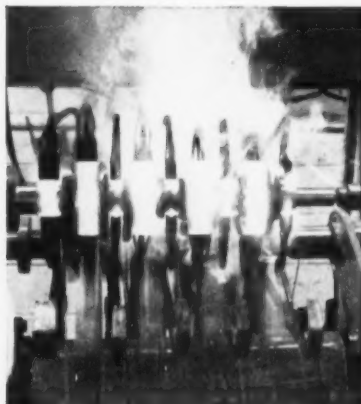
And find the leak! The supersensitive Zyglu-Pentrex ZL-22 quickly penetrates through faulty weld and shows as brilliant glow, looking at other face of weld under Zyglu Kit's black light.

THE HALLMARK
OF QUALITY IN
NONDESTRUCTIVE
TEST SYSTEMS

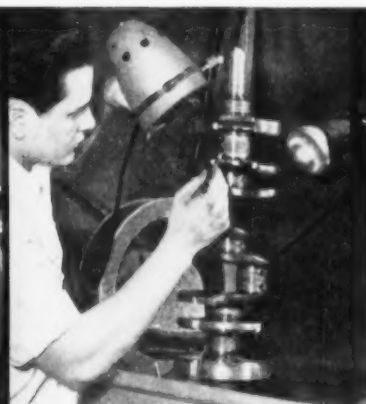


Write for complete details concerning any of the above case studies, or ask for our new booklet on Lower Manufacturing Costs.

Case Studies: NONDESTRUCTIVE TESTING SYSTEMS



Hardening crankshaft bearings with flame heat treating at National Induction Heating, Inc., Hazel Park, Mich.



Before and after heat treating, automotive crankshafts are inspected with Magnaglo for cracks.

How Nondestructive Testing Backs Unconditional Guarantee of Heat Treating

Backing up heat treating service with a 100% customer guarantee takes tight control—especially when the parts treated are critical, for planes and tanks.

Testing with Magnaflux-Magnaglo® makes such a guarantee entirely practical for National Induction Heating, Inc., of Detroit. Parts are tested *before* and *after* heat treating, since treatment may release stresses around inherent defects or produce thermal cracks in previously sound materials. Either way, Magnaflux-Magnaglo will find the defects!

Initial tests are made on "green" stock and on the first few treated parts to minimize scrap losses. If significant flaws or cracks are detected, the cause can often be corrected by slight changes in design or heat treatment before the full run is

processed. This means real savings for customers.

Magnaflux Testing Systems, using many various methods, are reducing costs in hundreds of in-process operations—at all stages of production. Wisely employed to find serious cracks early, they save time, labor and dollars which are otherwise wasted in working parts fit only to be scrapped. With Magnaflux' positive detection, *you* decide which defects are serious and how to correct them. You never need pass a bad part, or scrap a good one for harmless imperfections. *Result: Consistent quality levels at lowest cost to you.*

For further information on the many ways you can save money with Magnaflux Testing Systems, please write today for our booklet, **LOWER MANUFACTURING COSTS.**



STRESS ANALYSIS BRINGS STRONGER, LOWER-COST CASTING

Using Magnaflux' Stresscoat brittle coating for experimental stress analysis, foundries now suggest design improvements which reduce cost and improve the product. In this typical case, the original casting, a truck fifth-wheel support, #1 (at left) required three complex sand cores,

was expensive, had high stress concentration. Two intermediate designs, analyzed with Stresscoat, led to the new standard part, #4 (at right). It is 9% cheaper, 15% stronger, and much easier to pour. The result: Better castings and new business for the foundry.

Take Your Inspection Problems to the House of Answers . . . MAGNAFLUX CORPORATION

7302 W. Lawrence Avenue • Chicago 31, Illinois

New York 36 • Pittsburgh 36 • Cleveland 15 • Detroit 11 • Dallas 19 • Los Angeles 58

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ALLOY CASTINGS

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requirements of
your industry*



METALS PROCESSING DIVISION FOUNDRY
handles wide range of sizes,
closely controls dimensions



Precision testing methods
provide close control of
casting quality

Curtiss-Wright's Metals Processing Division today offers your industry precision castings of critical parts in a wide variety of sizes, and with closely controlled dimensions. For example, in the large casting shown, tolerance is $\pm .030$ over 36" diameter. From its modern, completely equipped foundry in Buffalo, the Division supplies heat, corrosion and abrasion resistant castings from a full range of special-property alloys, including ductile iron... by sand, centrif-

ugal, ceramic or shell processes.

Precision alloying techniques, modern melting controls with spectrometer testing, X-ray control by experienced radiographers — all add up to castings with superior physical and mechanical properties . . . mean better and more dependable products for the critical needs of industry. Qualified design engineering assistance is a part of the comprehensive Metals Processing Division service. Write for details.

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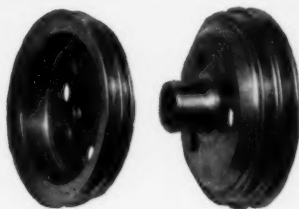
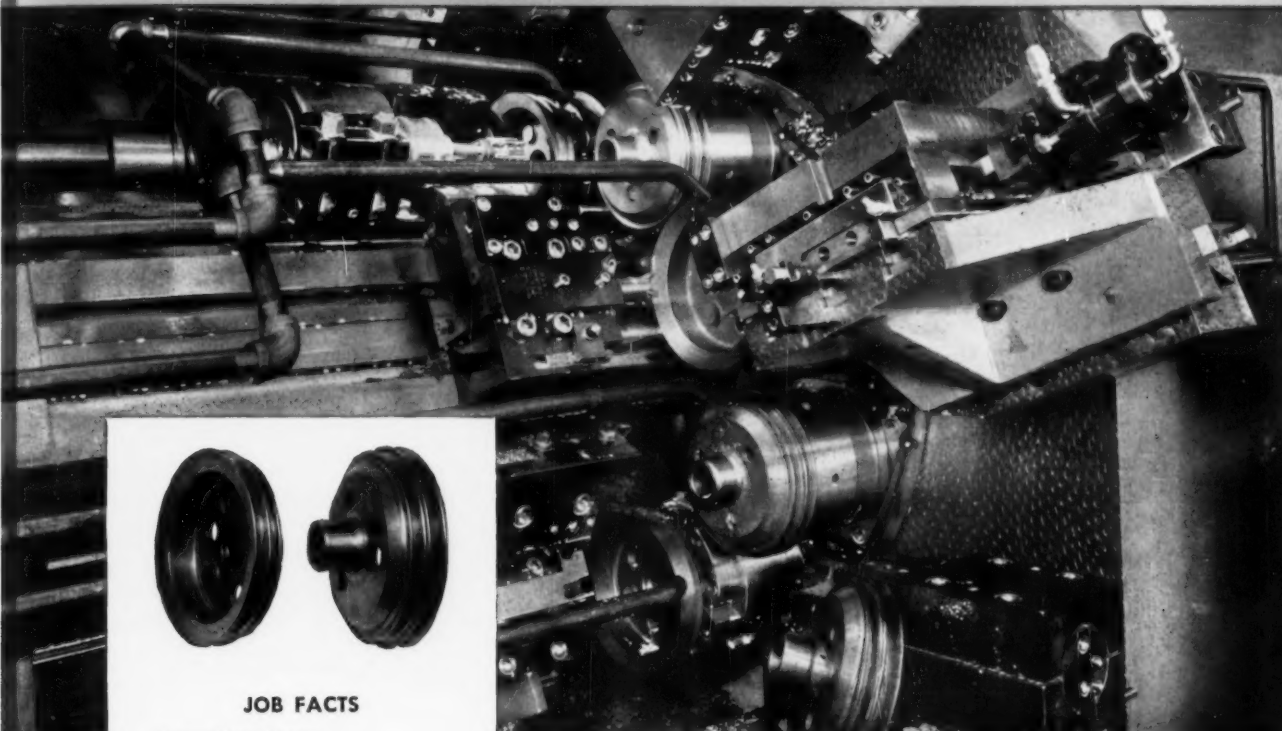


Metals Processing Division Branch Offices: New York • Houston • Los Angeles

with an

Acme-Gridley

8 SPINDLE CHUCKER...



JOB FACTS

Piece—Motor Sheave

Material—Cast iron $3\frac{1}{2}$ " long, $7\frac{3}{8}$ " diameter

Operations—Machine arranged for double indexing to complete both ends of piece simultaneously. 26 operations (13 on each end) including skiving. Carbide tooling used throughout.

Machine Time—49 seconds

Machine—8 inch 8 spindle Acme-Gridley chucking automatic.

Ask for our representative to tell you more about Acme-Gridley BASIC DESIGN. Meanwhile write for Bulletin CM-44 showing 25 different tooling setups on chucking jobs.

you get these advantages

Maximum production, at lowest cost per piece, is assured because of:

GREATER TOOLING FLEXIBILITY . . . the result of Acme-Gridley sound basic design.

DOUBLE INDEXING . . . which lets you finish both ends of the piece *at one time*, more accurately, with less handling—as fast as modern tools can take it.

INGENIOUS TOOLING ENGINEERING . . . that comes *only* from COMPLETE LINE experience.

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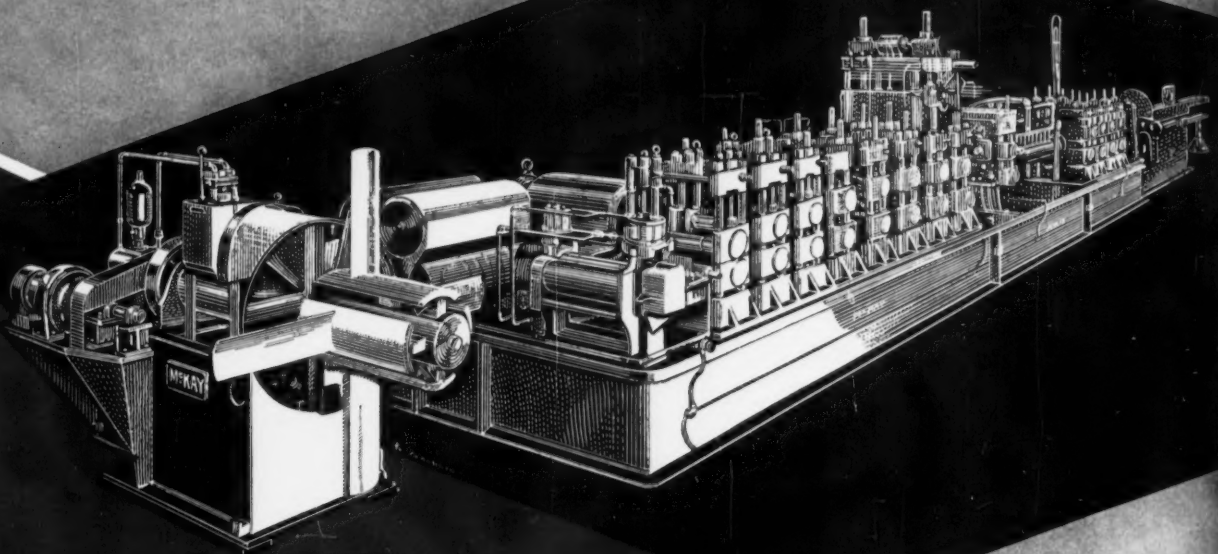
This booklet also shows how to speed materials handling with Whitening Cranes and Trambeam Overhead Handling Systems. In addition, it describes many other types of Whitening equipment. Here are 32 pages of profit-building ideas, indexed by type of industry for your convenience. Write for your copy. Whitening Corporation, 15601 Lathrop Avenue, Harvey, Illinois.



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Resistance Weld Tube Mills...

**FOR THE MOST EFFICIENT
TUBE MAKING IN THE INDUSTRY**

McKAY MILLS are recognized throughout the tube and pipe making industry as the finest equipment available. Users have found McKay gives more machine for the money — that the slight extra cost of these rugged machines is more than repaid in long trouble-free service that results in real efficiency.

McKay designs and builds tube and pipe mills in all sizes.
The McKay Machine Company, Youngstown, Ohio.

9966



SETTING THE STANDARDS OF QUALITY IN METAL WORKING MACHINES FOR TWO GENERATIONS



CECO-DROP

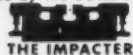
THE STANDARD GRAVITY DROP HAMMER

**Time-tested
and proven
in
125 forge shops
all over the
world**

CHAMBERSBURG

THE HAMMER BUILDERS

Made by the BUILDERS of

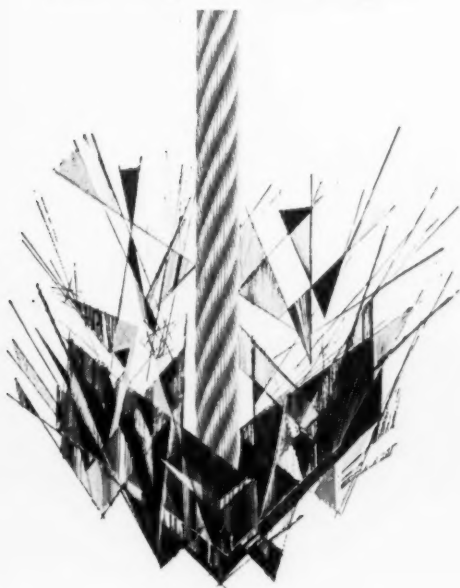


CHAMBERSBURG ENGINEERING CO., CHAMBERSBURG, PA.



Stands up to bending fatigue

Has higher strength



**These four qualities
in Roebling Royal Blue Wire Rope
mean longer service life!**



Absorbs shock and impact

Withstands Abrasion



They all add up to the fact that Roebling Royal Blue will deliver more work on your job—regardless of what it is. It's as simple and money-saving as that. For full information on Royal Blue, the rope that's stronger than yesterday's strongest, talk to your Roebling Distributor or write Wire Rope Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

ROEBLING

Branch Offices in Principal Cities—

Subsidiary of The Colorado Fuel and Iron Corporation



CUT COSTS ... SPEED DRILLING OPERATIONS

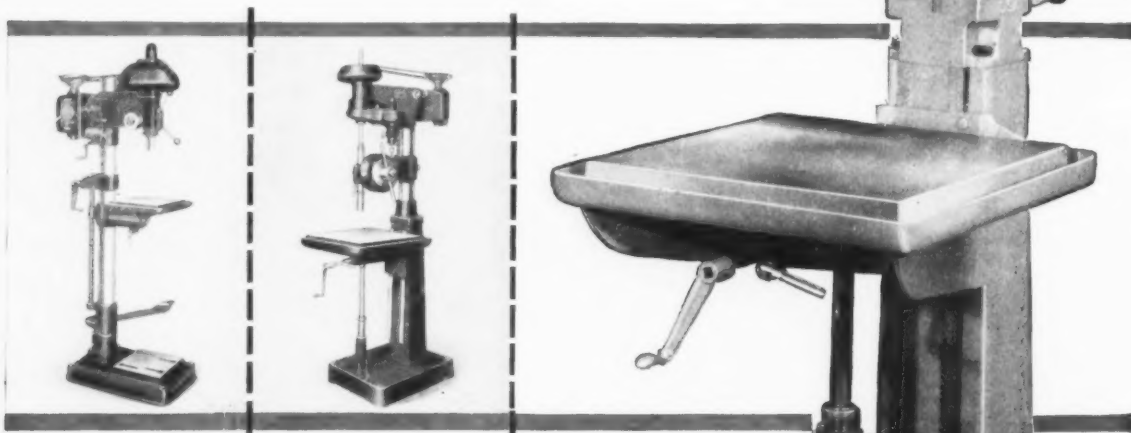
with "BUFFALO" DRILLS

The enthusiastic industry-wide acceptance of the No. 1 "RPMster" is a matter of quiet pride with us at "Buffalo". First, we found out what you people in the industry wanted . . . as the ultimate in drill features. Then, we drew upon our 80 years of engineering experience to design these most-wanted advantages into this "drill to surpass all previous drills".

The results speak for themselves. Here, in the "Buffalo" No. 1 "RPMster" are *all* the benefits you wanted most. You'll find extreme accuracy, high output, complete convenience. The ingenious gearless drive offers the widest range of spindle speeds, from 100 to 3000 . . . instantaneously adjustable. Operation is so effortless, quiet, versatile and vibrationless that you'll have to operate it yourself before you'll believe it's possible.

Phone your nearest "Buffalo" Machine Tool Dealer for a demonstration of the No. 1 "RPMster" . . . or write for Bulletin 3967-A.

- 1001 SPEEDS
- FLEXIBILITY
- ACCURACY
- DEPENDABILITY



"Buffalo" No. 18 DRILL

Easy to operate, the No. 18 is a high-grade, stationary-head, general-purpose drill. Suitable for shop or production work up to 1-inch cast iron. Nineteen models available in bench and floor types, with multiple units up to 6 spindles in pedestal type. For full details, write for Bulletin 3123E.

"Buffalo" No. 16 DRILL

You get a lot in the No. 16 Drill — high sensitivity and accuracy, combined with rigid, durable construction. Ideal for shop or production work, it's available in 8- 12- and 15-inch overhang — in bench, floor or pedestal types — in multiple units up to 6 spindles. Write for Bulletin 2730G.

THE SUPERLATIVE
No. 1 "RPMster"

Engineered into every "Buffalo" Drill is the famous "Q" Factor — the built-in Quality which provides trouble-free satisfaction and long life.



DRILLING • PUNCHING • SHEARING • BENDING

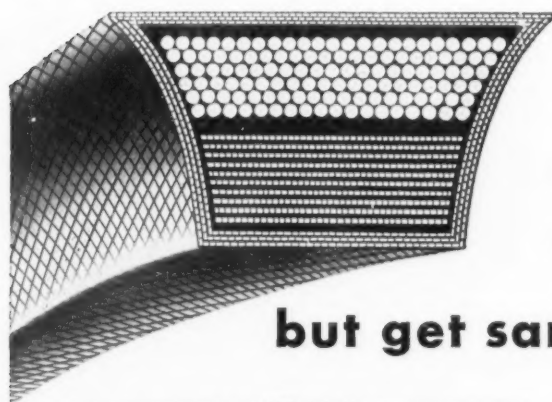


BUFFALO FORGE COMPANY

492 BROADWAY • BUFFALO, N. Y.

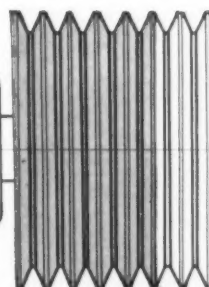
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

5 Gates Super Vulco Ropes do the work of 7 standard V-belts



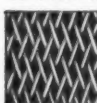
Use
fewer
belts...

but get same HP



No other V-Belt has ALL these advantages

1. Flex-Weave Cover (U.S. Pat. 2519590)



A Gates exclusive: provides greater flexibility with far less stress on fabric. Cover wears longer . . . increases belt life . . . more power available to driven machine.

2. Concave Sidewalls (U.S. Pat. 1813698)



Concave sides (Fig. 1) increase belt life. As belt bends, concave sidewalls become straight, making uniform contact with sheave groove (Fig. 1-A). Uniform contact means less wear on sides of belt . . . far longer belt life.

3. Tough, resilient Tensile Cords



Super strong resilient tensile cords provide 40% greater horsepower capacity . . . easily absorb heavy shock loads . . . reduce number of belts required save weight and space.

4. High Electrical Conductivity

Built into Gates Super Vulco Ropes for safer drives (in explosive atmospheres).

5. Oil, Heat, Weather Resistant

Special rubber compounds make Super Vulco Ropes highly resistant to heat, oil, and prolonged exposure to weather.

Cut sheave width and weight

. . . design your drive to benefit from the greater HP capacity of Gates Super Vulco Ropes.

5 Gates Super Vulco Ropes will do the work of 7 Standard V-Belts. A Super Vulco Rope Drive delivers more HP per dollar invested than any standard V-Belt drive.

Sheaves with fewer grooves cost less . . . weigh less . . . occupy less space. Your drive design is improved.

Helpful drive data is quickly available to you. Simply call your nearby Gates distributor for advice from a Gates V-Belt Specialist. Stocks carried in industrial centers throughout the world.

The Gates Rubber Company

Denver, Colorado



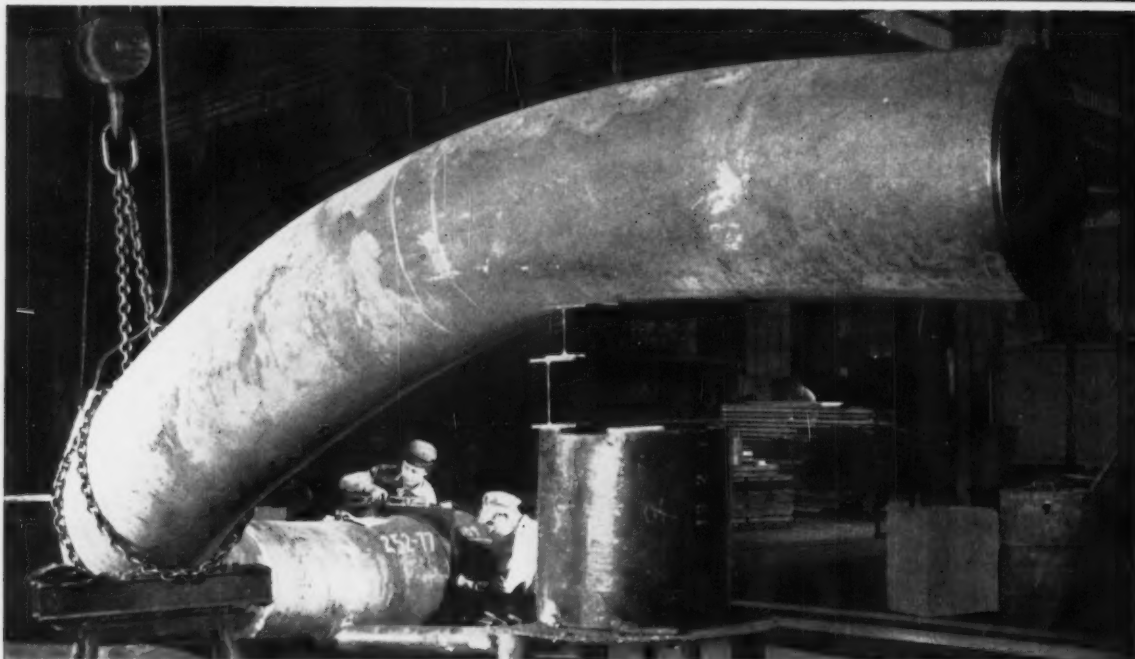
TPA 264



The Mark of Specialized Research

Gates Super V^{ULCO} ROPE Drives

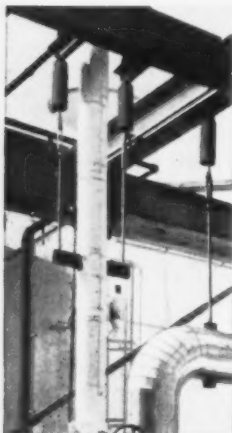
BLAW-KNOX has what it takes—to provide these products and services



Large chrome moly pipe being readied for shipment to new generating station. Making a right angle bend followed by a 24 degree, 18 foot bend in this heavy 27½ inch chrome moly pipe required all the skill and modern facilities of the Blaw-Knox power piping shop. Before shipment, piping is heat-treated and ultrasonically tested with a radar-type device for detection of any defects.

A new Blaw-Knox "6 x 6" Flexibility Matrix Method

of computing stresses in power piping systems is now available to consulting engineers, companies, and individuals responsible for the design of power piping systems. By the use of an electronic computer this method cuts calculating time from months to a day; assures full accuracy to six significant figures; and has no limitations on the complexity of the system. Write for further information about our new "6 x 6" Flexibility Matrix Method.



Two-way control over movement of piping is provided by Blaw-Knox functional spring hangers with the patented internal swivel action—shown in this modern outdoor generating station. Our experienced engineers are available to both design and make recommendations for your hanger requirements. To get full information, write for Catalog No. 54.

Each year serious fire strikes one out of every seven manufacturing firms in this country. Be safe. Let a Blaw-Knox fire-protection engineer study your needs—and explain how you can pay for the system on our lease or deferred payment plan. To get more information send for Bulletin No. 2426—"Fire Can Destroy Your Business."



BLAW-KNOX COMPANY

Power Piping and Sprinkler Division
829 Beaver Avenue • Pittsburgh 33, Pennsylvania

Complete facilities for prefabrication and erection of piping systems for all pressures and temperatures
... complete line of standard and custom-engineered pipe hangers, supports and vibration eliminators
... complete line of automatic sprinkler systems for standard and special hazards

new clean-sweep styling and modern power features open the way to new production peaks

ALL
NEW



totally enclosed

inboard drive

wrap-around crown

power clutch

power brake

power treadle

NIAGARA 30 AND 50 TON PRESS BRAKES*

HERE'S MEANINGFUL STREAMLINING . . . and at its very best! *Everything's inboard:* Motor, belts, flywheel, clutch, brake and gears . . . yes, even the connections, pitmans and ram adjustment mechanism. *Nothing protrudes!*

Resourceful designing has made it possible to provide heavier, deeper uprights with relatively no increase in floor space. Net result: A 50% deeper throat for larger work.

HERE'S PERFORMANCE that can't be matched! These all-new Niagara Press Brakes have a smoothness of action all their own. Niagara Power Features . . . Power Clutch, Power Brake, Power Treadle . . . assure easy, instant response to every command. The ram can be micro-jogged smoothly and softly to a layout line, or stopped on a dime at full speed!

Proved on mighty Niagara Presses, Niagara's Electro-Pneumatic Friction Clutch engages in a fraction of a second, disengages even faster, and *fails safe!* Featuring simplified construction, it's a low inertia, heavy duty unit that's designed to outperform and outlast any other press brake clutch. Friction plates automatically compensate for wear . . . no adjustment required.

Spring applied, Niagara's powerful Air Releasing Brake can't fail for it does not depend on energy (air or electricity) to bring the machine to an immediate halt.

HERE'S RUGGEDNESS to take extreme loads in stride! Niagara's solid, all-welded steel one-piece frame with integral wrap-around crown provides maximum resistance to deflection. *There's nothing to work loose!* Utmost strength and rigidity are assured.

Straddle mounted between anti-friction bearings, hardened steel gears run in a sealed oil bath. Centralized pressure lubrication delivers oil to all main bearings, connection bearings and gibs with a single shot.

PREVIEW THESE ULTRA-NEW MACHINES

Find out what they can do for you by writing for Niagara's new, illustrated Bulletin 90 today.



NIAGARA MACHINE & TOOL WORKS • BUFFALO 11, N. Y.

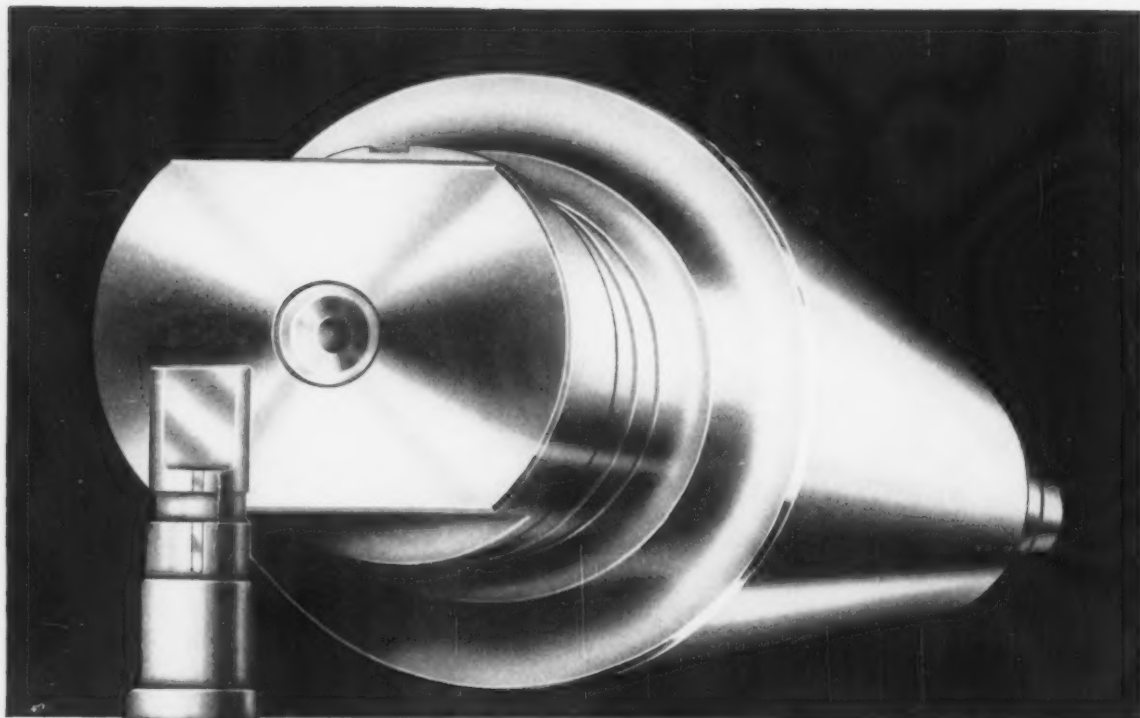
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America's most complete line of presses, press brakes, shears, other machines and tools for plate and sheet metal work

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experience

...one of the unseen extra values you get in every

NATIONAL ROLL

In the final analysis, the quality of a roll is determined by the experience of the maker . . . Experience in metallurgy, experience in casting, experience in heat treating and machining.

For almost fifty years, National has been making rolls for the metal industry throughout the country. And now this experience is backed by the years of metallurgical experience of National's parent organization, General Steel Castings Corporation.

Such experience is your assurance of the best in iron and steel rolls . . . rolls that will give you dependable service, higher tonnages and longer life. Try National rolls and see.



GENERAL STEEL CASTINGS CORPORATION

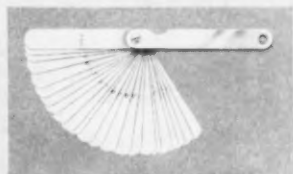
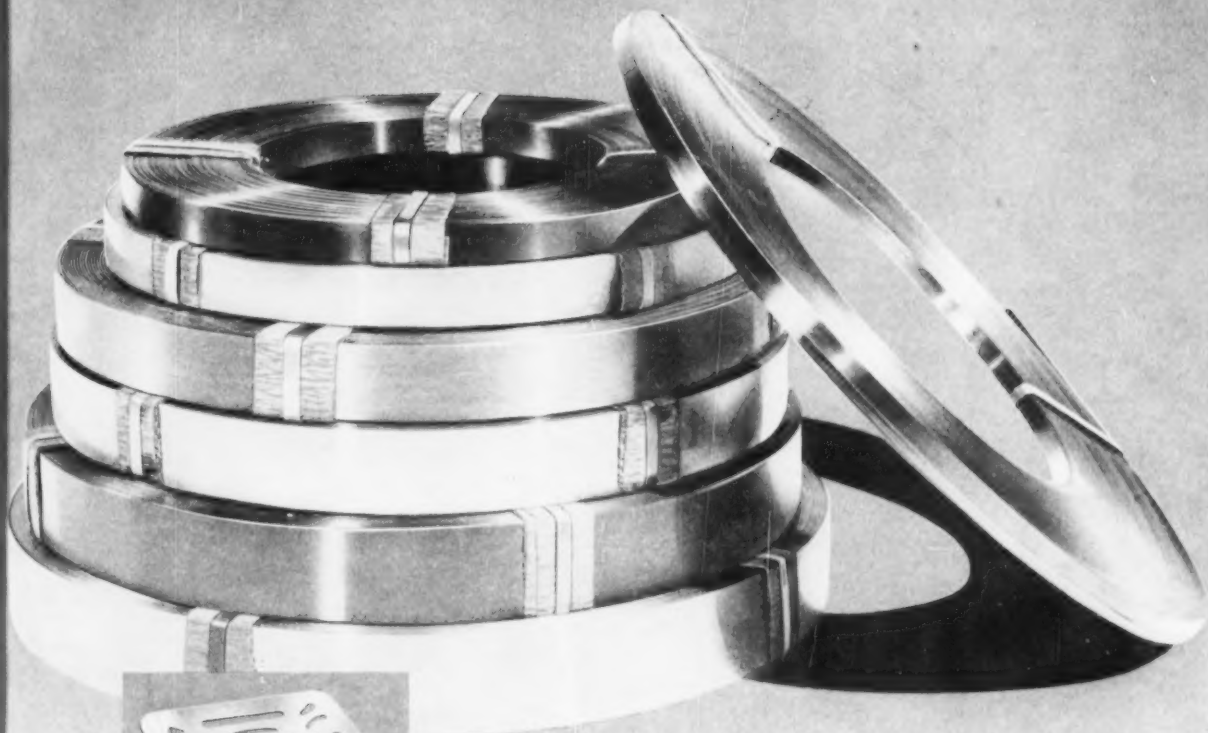
NATIONAL ROLL & FOUNDRY DIVISION

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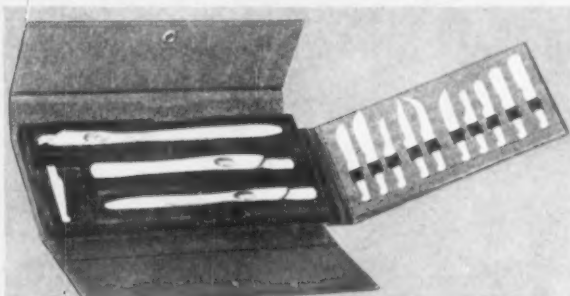
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The Trend is to "Tailored" Steels



If yours is a question of ultimate forming strength, light weight, uniform thickness, finish and structure, Wallace Barnes specialty strip steels are the answer. Meeting exacting specifications is an everyday occurrence in our modern mill where precision methods count more than mass production. Prove to yourself how "made-to-measure" steels meet modern design and fabricating requirements. Send for our steel story.



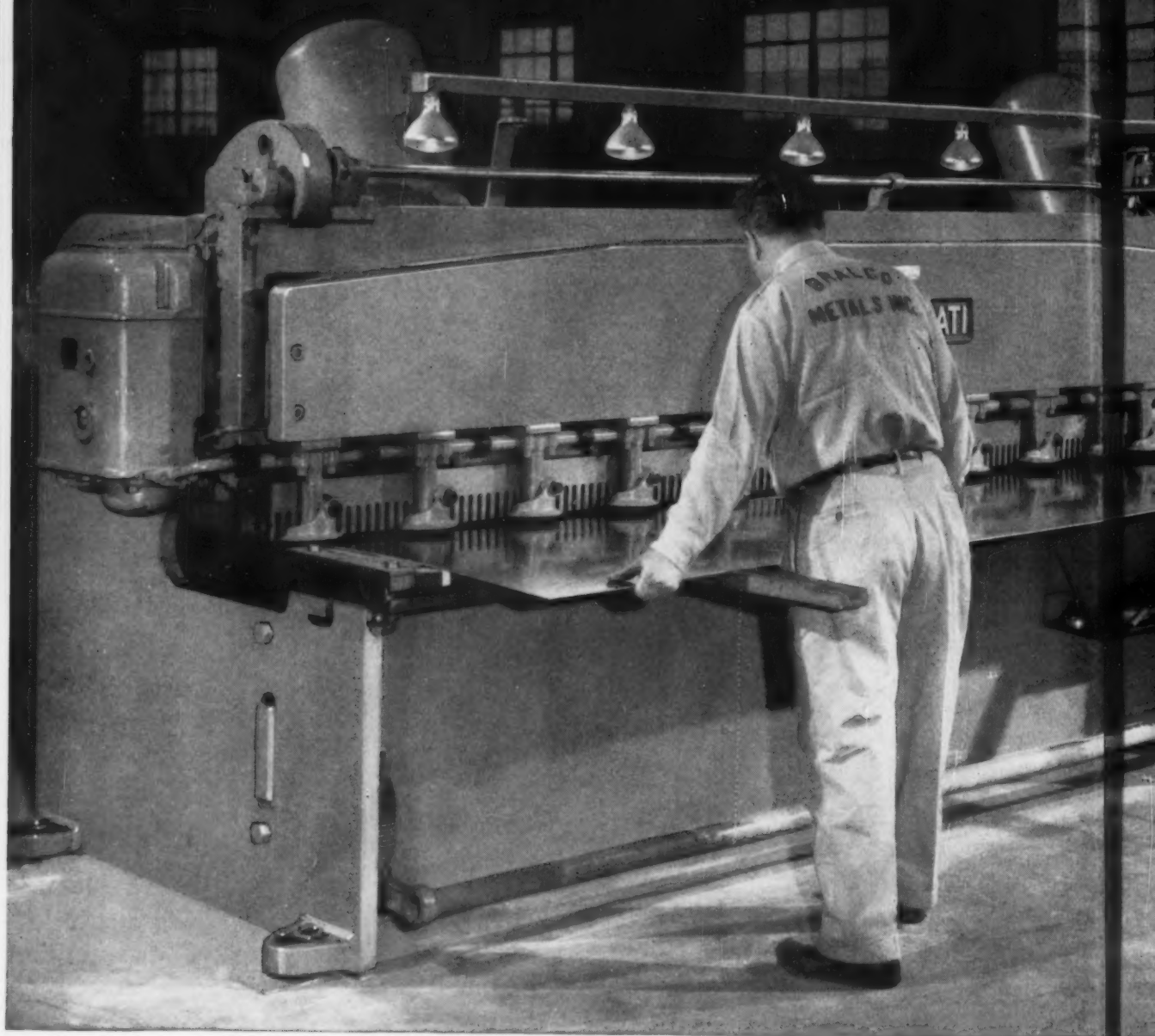
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Accurate CINCINNATI S



The 1412 Series Cincinnati Shear is shown shearing aluminum sheet. High pressure hydraulic holddowns automatically clamp different gauges of metal with the same pressure.

CINCINNATI SHEAR brings substantial increase in sales...

at BRALCO METALS, INC., Los Angeles, California

Micrometer accuracy in squaring, notching and slitting of aluminum sheet and plate makes this Cincinnati Shear a profitable producer. The Bralco Company states "There is no question that this Shear has been responsible for a substantial increase in our sales." Maintained accuracy is insured by hydraulic holddowns, low rake upper knife, inclined ram and all-steel, weld free construction.

Write **Department B** for Shear Catalog S-7R. We also suggest that you contact our Application Engineering Department for information on your shearing problems.

Photos courtesy Bralco Metals, Inc., Los Angeles 22, California.

THE CINCINNATI SHAPER CO.

CINCINNATI 25, OHIO, U.S.A. SHAPERS • SHEARS • PRESS BRAKES



STAINLESS STEEL MAKES THE DIFFERENCE

...its effect on
modern trucking

Stainless steel sets new standards of performance for truck trailers. Experience proves that stainless outlasts and outwears other materials and is always easier to maintain.

That's because stainless is practically immune to corrosion and rust. Its inherent toughness makes it hard to dent or scratch. Operating costs are less, too, because stainless needs no paint or special finish—the beautiful smooth surface is always quick and easy to clean. Extra strength lets you carry bigger payloads safely. No wonder more and more stainless steel units are going into service each year!

For more information about stainless steel and the many ways it can help improve your automotive products—see your stainless steel supplier or write **ELECTROMET**...leading producer of more than 100 alloys for the metal industries, including chromium and manganese used for making stainless steel. **ELECTRO METALLURGICAL COMPANY**, Division of Union Carbide Corporation, 30 E. 42nd Street, New York 17, N. Y. *In Canada:* Electro Metallurgical Company, Division of Union Carbide Canada Limited, Toronto.

**METALS DO MORE ALL THE TIME
...THANKS TO ALLOYS**

Electromet
FERRO-ALLOYS AND METALS



The terms "Electromet" and "Union Carbide" are registered trade-marks of Union Carbide Corporation.



With stainless steel you never compromise on strength, durability or appearance. Stainless makes bigger payloads possible, yet outlasts other materials.



"A new press just wasn't in the cards..."

so we rebuilt this one and saved ourselves a lot of money!" And it can be done with any Bliss press. Bliss has developed 42 modernization "packages"—pre-engineered assemblies—all you need to make an old press act young again. Add faster clutches, modern adjustments, more compact gearing, greater capacity. Do it in *your* own plant to keep downtime at a minimum. Or have Bliss do a complete rebuilding job for you.

Which is better? It's up to you. We'll give you the facts, but it's up to you. For here at Bliss, we consider the sale but the beginning of our responsibility. Which is what we mean when we say, "Bliss is more than a name... it's a guarantee."



E. W. BLISS COMPANY • Canton, Ohio

100 years of making metal work for mankind

PRESSES • ROLLING MILLS • ROLLS • DIE SETS • CAN MACHINERY • CONTRACT MFG.

SPECIALIZED RESEARCH



This expansion test illustrates why the special composition developed for Kaiser Periclase Chrome brick assures better end wall service.

To show the effect of steel plates on permanent growth, two types of pre-fired brick with steel plates on four sides were laid up to form the side walls of a test furnace. This furnace was heated with gas to 3100°F., \pm 25°, and held there for 16 hours.

After cooling, the bricks were measured for comparative permanent growth. The effects shown were solely of the heating and iron oxide reaction. The chrome-magnesite type (upper row) showed an average 9% permanent linear growth; Kaiser Periclase Chrome (lower row) grew an average of only 1.4%.

This test demonstrates one of the many ways that Kaiser Chemicals research continuously proves—and improves—specialized products for better service to the steel industry.

PRODUCT SPECIFICATION

Compare these specifications to those of any other end wall brick . . . and the comparison will tell you why more and more open hearth operators specify Kaiser Periclase Chrome Brick—long respected for its consistent high quality and consistent high performance values:

1. Greatly increases end wall life when needed, or
2. Cuts costs with thinner walls when end wall service is balanced.

1. CHEMICAL ANALYSIS: (Typical)

	Chemically Bonded	Burned
Loss on Ignition	3.7%	0.0%
CaO	1.0	1.0
SiO ₂	8.4	8.7
Cr ₂ O ₃	9.1	9.4
Fe ₂ O ₃	4.5	4.7
Al ₂ O ₃	7.9	8.2
MgO (by difference)	65.4	68.0
	100.0	100.0

2. PHYSICAL PROPERTIES: (Typical)

REFRACTORINESS: Hot Load Test (shear)			
Temp. @ 25 lbs./sq. in.)	3090°F	3090°F	
Deformation, @ 25 lbs./sq. in., 1/2 hr. @ 3000°F . . . . .	..	3-5%	
P.C.E. Value . . . . .	..	over 42	over 42
VOLUME STABILITY: Shrinkage (no load)			
Linear, % (after firing to 3000°F 5 hrs.) . . . . .	..	0%	
Linear Coefficient of Reversible Expansion (in./in./°F) (80-2730°F) . . . . .	..	6.25x10 ⁻⁶	
Reversible Thermal Expansion @ 2730°F . . . . .	..	1.7%	
POROSITY: Apparent	7.5%	20.5%	
True	7.5%	21.5%	
DENSITY: Bulk, lbs./cu. ft. 187		179	
Av. Wt. of 9" x 4 1/2" x 3"	12.9	12.6	
STRENGTH: Crushing strength, lbs./sq. in.	9,000	5,000	
MEAN SPECIFIC HEAT: (85-1830°F) (Btu/lb./°F) . . . . .	..	0.264	

*Figure not constant over temperature range.
**No value applicable. Brick is burned in test.

**All three show why you get superior
with Kaiser Periclase Chrome**

USERS' EXPERIENCE

COMPARATIVE END WALL TRIAL
"... had inspected walls day prior to accident and noted Kaiser Periclase Chrome Metal Encased Brick sections were plumb, in line and tight whereas other panels were bowed and leaking."

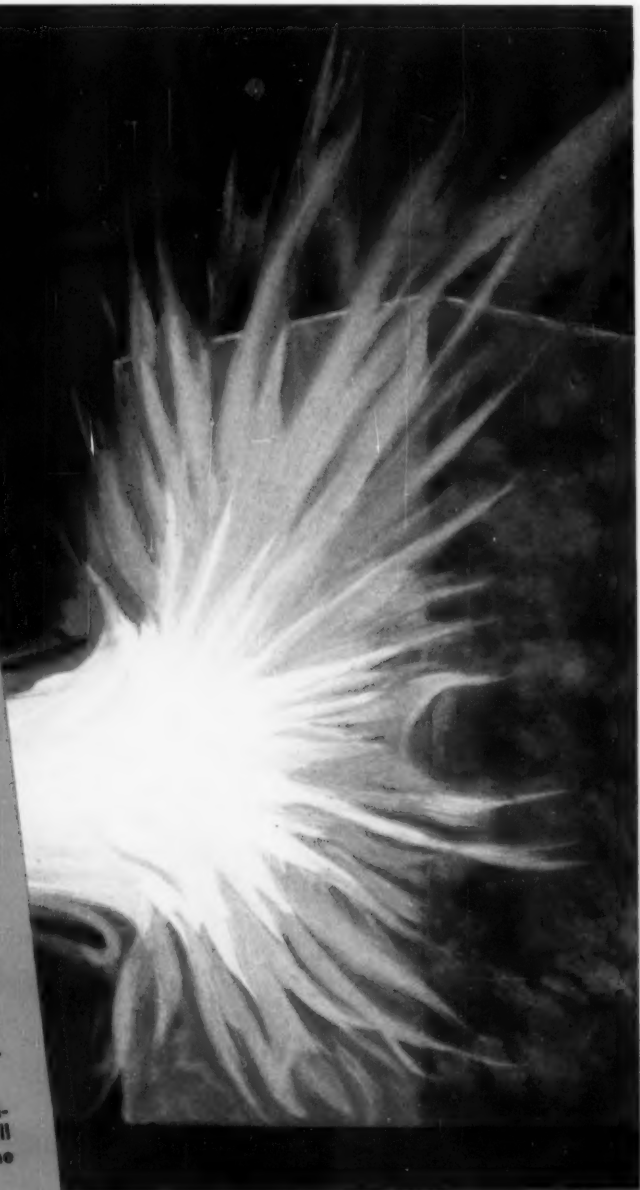
END WALL REPORT
"... Panels of Kaiser Periclase Chrome Metal Encased Brick went 402 heats while comparative panels in the same campaign were replaced at 265 heats."

END WALL REPORT
"... Furnace finished its third campaign using Kaiser Periclase Chrome Brick end wall for a total of 562 heats. Furnaces using other brick usually lasted only 200 heats—one campaign."

These statements from Kaiser Chemicals customers illustrate new performance or production records made possible by changing to Kaiser Periclase Chrome basic brick.

This brick—like every other Kaiser Chemicals refractory—is especially designed for peak performance in a specific application. Its patented composition is backed by more than 15 years of continuous research, development and experience.

Let your Kaiser Chemicals sales engineer explain how you can take full advantage of Kaiser Periclase Chrome Brick in your operation.



end wall service
Basic Brick

Call or write Kaiser Chemicals Division, Dept. 57152, Kaiser Aluminum & Chemical Sales, Inc., at any of the regional offices listed below:

PITTSBURGH 22, PA. . . . 3 Gateway Center
HAMMOND, IND. . . . 518 Calumet Building
OAKLAND 12, CALIF. . . . 1924 Broadway



Kaiser Chemicals

Pioneers in Modern Basic Refractories

REFRACTORY BRICK & RAMMING MATERIALS • CASTABLES & MORTARS • MAGNESITE • PERICLASE • DEADBURNED DOLOMITE • ALUMINAS

THE IRON AGE, August 22, 1957

47

Now, all former hot rolled
Crucible REX high speed rounds
supplied with a new thrift finish

*for the price
of this
you get this*



Here's a revolutionary, new Crucible policy designed to provide an improved product—save time and processing costs. Now, Crucible furnishes all REX® high speed rounds from $\frac{5}{8}$ " up with a machined surface, close to size and free from decarburization. All bars from $\frac{1}{4}$ " to $\frac{5}{8}$ " round are supplied cold finished.

This new *thrift* finish means important savings to you — whether you've been paying extra for decarburization and stock removal, or grinding or rough turning rounds in your own shop. Of course, where extremely close tolerances are demanded, precise centerless grinding is still available at a small extra.

It's another Crucible "first" that offers you substantially more for your high speed steel dollar. *Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

CRUCIBLE

first name in special purpose steels

Crucible Steel Company of America

Canadian Distributor — Railway & Power Engineering Corp., Ltd.

Reduces Machining Time

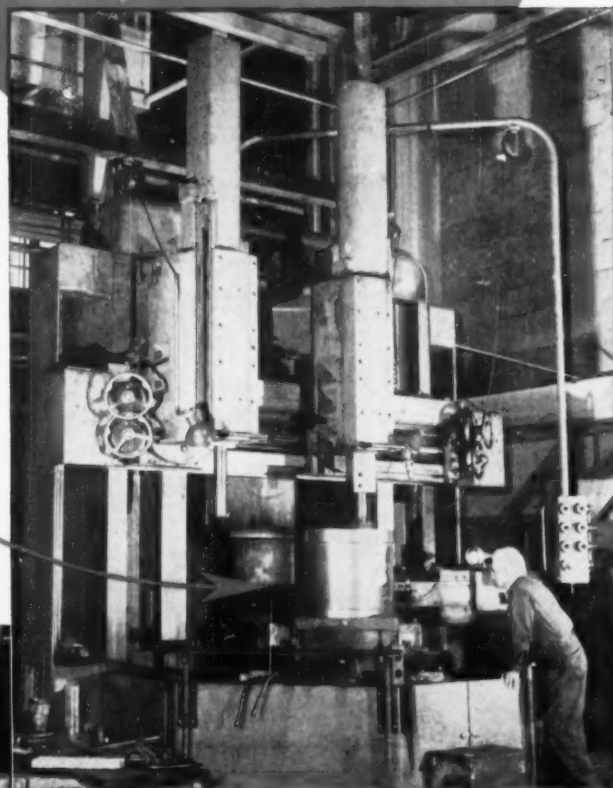
with

BULLARD

Cut Master VERTICAL TURRET LATHE MODEL 75

In the machining of a barrel housing used in a large mechanical press, manufactured by the Clearing Machine Co., Chicago, Ill., Mr. L. W. Prochnow, Factory Manager says "our 66" Cut Master, Model 75 is a big, husky machine. Its heavier rams, overall rugged construction and greater horsepower provide higher speeds and feeds easily controlled from the movable Pendant. These features enable us to cut our floor to floor time, per piece, by four hours. And we've had no maintenance problems in nearly two years of operation." These same cost savings can be applied to your machining problems when considering replacement or additional capacity in your plant.

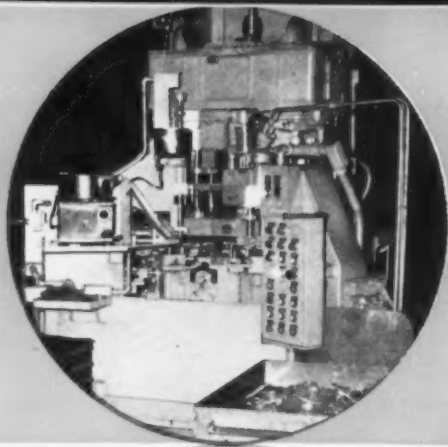
From rough casting, weighing 1,780 lbs., 28" in diameter and 36" long, to finished piece with a 35% saving in machining time.



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when cutting metals —
buy BULLARD

Our nearest Sales Office or Distributor
will be glad to show you how or write
for complete catalog to

THE BULLARD COMPANY
BRIDGEPORT 9, CONNECTICUT



*Two sizes of motor end-plates
are assembled, bored,
drilled and tapped in a
Natco 3-Way Machine.*

At Wagner Electric Corporation

One Natco





ation

co

Assembles, Bores, Drills and Taps... Reduces Labor Cost 70% On Small Motor End-Plates

This Natco combination assembly and multi-drilling machine presses a bearing sleeve into the end-plate, rough and finish bores the outside bearing-cap hole, drills an oiler hole at an angle, drills four (4) thru-bolt holes, and drills and taps two (2) 8x32 cover plate holes. *Production is 170 pieces per hour.*

This Natco accommodates two sizes of motor end-plates without changes in the basic rotary-table tooling. In addition to this important versatility the engineers at Wagner Electric point out these other advantages:

- *one operator* controls the assembly and machining from one station.
- *work scheduling* is simplified due to the short machine cycle.
- *in-process inventory* can be kept at a minimum because of high production rate.
- *floor space* is made available for other operations.

Natcos perform all kinds of drilling, boring, facing and tapping jobs in every conceivable combination and sequence.

Ask the Natco Field Engineer about the newly perfected
tape control systems for Natco production tools.

National Automatic Tool Company, Inc.

*Richmond, Indiana Multi-spindle drilling, boring and tapping machines. Special machines for automatic production.
Call Natco Offices in Chicago, Detroit, New York, Buffalo, Philadelphia, Cleveland, Los Angeles; distributors in other cities.*



Microsize FLEXLOC locknuts help you design smaller assemblies and fasten them securely

SIZE	Across Flats		Hex. Height	Across Corners		Height
	MAX.	MIN.	REF.	MIN.	REF.	
0-80 NF-3B	.111	.107	.046	.121	.075	
1-64 NC-3B	.127	.123	.056	.140	.090	
1-72 NF-3B	.127	.123	.056	.140	.090	
2-56 NC-3B	.158	.153	.067	.176	.105	
2-64 NF-3B	.158	.153	.067	.176	.105	
3-48 NC-3B	.190	.183	.071	.210	.120	
3-56 NF-3B	.190	.183	.071	.210	.120	
4-40 NC-3B	.190	.183	.071	.210	.120	
4-48 NF-3B	.190	.183	.071	.210	.120	

Standard microsize Flexloc locknuts are available in brass (plain or cadmium plated) and aluminum (plain or chemically treated) for temperatures up to 250°F; in alloy steel (plain or cadmium plated) and 18-8 stainless steel (silver plated) for temperatures up to 550°F.

STANDARD PRESSED STEEL CO.

FLEXLOC LOCKNUT DIVISION

SPS
JENKINTOWN PENNSYLVANIA

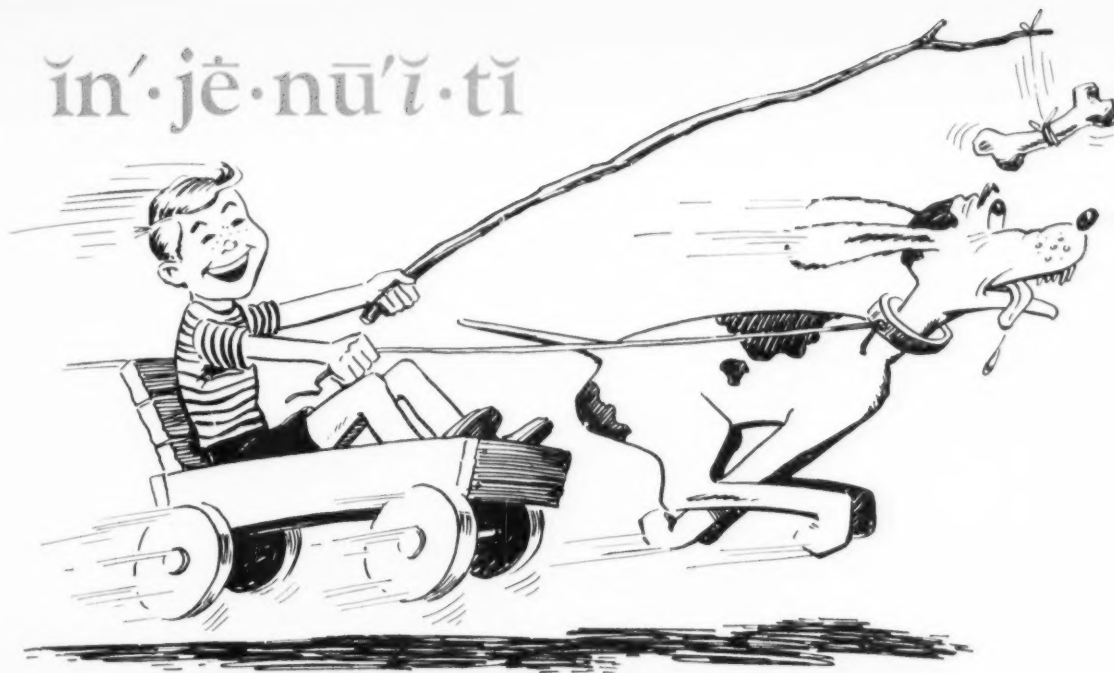


Microsize FLEXLOC locknuts save space and reduce weight in electronic equipment, instruments, servomechanisms, and other small assemblies in which weight and bulk are important design considerations. Microsize FLEXLOC locknuts are smaller and lighter than regular FLEXLOCs of the same nominal diameter. They permit smaller mating joints or flanges—with no loss in holding power or convenience of assembly.

Like regular FLEXLOCs, microsize FLEXLOC locknuts are of one-piece, all-metal construction. No inserts to pop out or deteriorate; nothing to put together, come apart or get lost. FLEXLOCs lock and stay locked wherever wrenching stops. You can use them as locknuts or stop nuts. Vibration will not loosen them and they can be used many times over.

For more information on microsize FLEXLOC locknuts (or microsize FLEXLOC self-locking clinch nuts), see your local FLEXLOC distributor or write STANDARD PRESSED STEEL CO., Jenkintown 17, Pa.

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the real way to spell **AUTOMATION**

Boiled down to its fundamentals automation only means imparting automatic operation to repetitive production processes. It can cover a single machine as well as an entire production line.

Most of the needs of automation can be met by relatively simple controls plus a healthy helping of old fashioned ingenuity.

For example, we manufacture a series of electrically controlled air-powered work units. With one or more of these devices you can convert a wide range of standard machines and machine tools to fast automatic units. Or you can use them to form the basis of inexpensive, tool-room-built special purpose machines.

It doesn't matter what you make — how big or small your operation — you'll find Bellows "Controlled-Air-Power" Devices will play for themselves quickly — often before the due date of the invoice we'll send you.



This booklet
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Write for it.

Bulletin ML-3 — the quick story of what Bellows can do for you.

Address: The Bellows Co., Akron 9, Ohio, Dept. IA 857

In Canada: Bellows Pneumatic Devices of Canada, Ltd., Toronto, Ont.

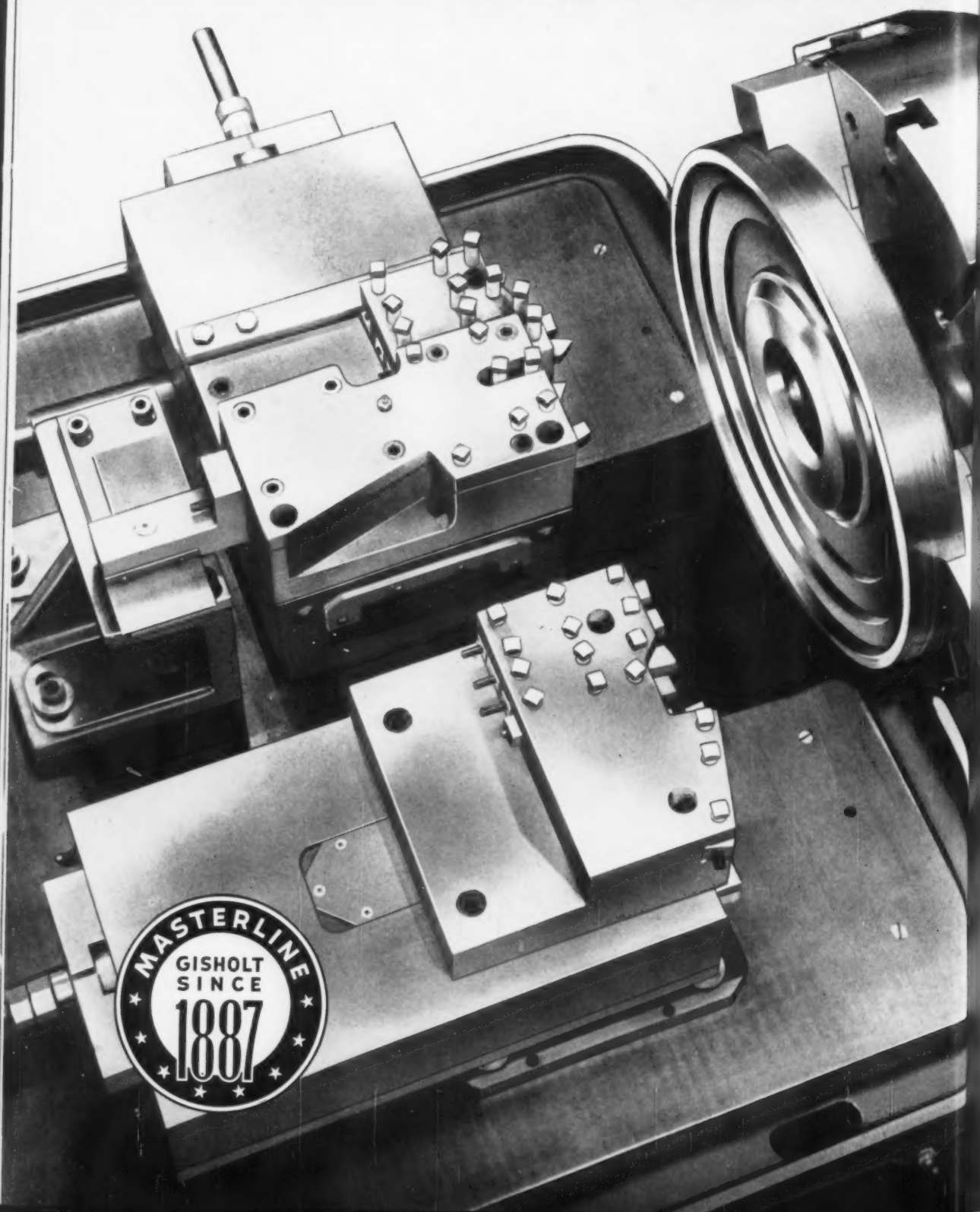
The Bellows Co.

AKRON 9, OHIO

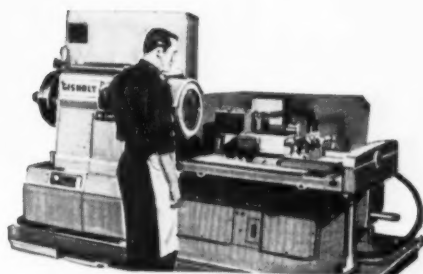
Manufacturers of Air Powered Work Units: Air Motors, Air Cylinders, Air Hydraulic Controls, Work and Tool Feeding and Holding Devices. Field Engineer Offices in all principal cities and industrial areas in the United States and Canada.

759-B

This New GISHOLT MASTERLINE
SIMPLIMATIC AUTOMATIC LATHE may save you the



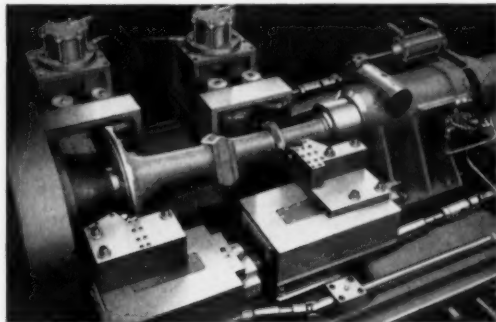
you the cost of a special machine



HERE'S WHY: the machine itself—headstock, bed, extra wide platen table—is *standard*!

Yet with the new Gisholt MASTERLINE Simplimatic Automatic Lathe, you have ample space for an *infinite* number of slide and tool arrangements. You can use front, center, rear and auxiliary slides—all moving at different feed rates—carrying enough tools to machine a maximum number of surfaces in a single chucking. All slides are easily mounted at correct angle to the work—keeping tool overhang to absolute minimum for increased rigidity and increased accuracy. And with the Simplimatic's table feed, tools can engage with the work or perform additional machining operations before actual slide movements begin.

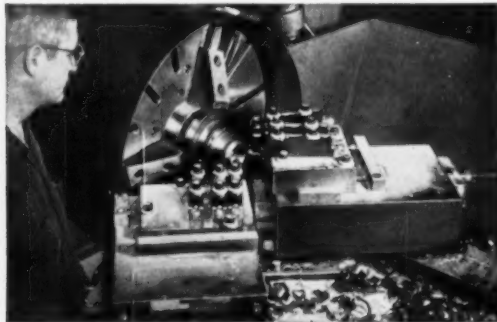
Simplimatic setup for machining both ends of tractor rear axle housings in one chucking. Four tool slides are used, two at the front and two at the rear of the platen table. Machining includes turning and chamfering, forming and straddle-facing, with tool relief provided for facing tools on the rear tool blocks.



Because the Gisholt Simplimatic is a standard machine, it is *easy* to set up, operate and maintain. In many cases, the automatic cycle frees the operator to handle additional units or perform other work. And the basic design is readily adapted for work-handling devices, which even further simplify the operator's job and speed production!

Ask your Gisholt Representative to show you how efficiently the Simplimatic can handle your problem parts—using a simple, standard machine transformed by addition of standard tool slides, tool blocks and chucking equipment—performing *special* machine functions at *standard* machine prices! Call him today for full information on the Simplimatic!

Six different sizes of tough steel oil well cutter bits are handled with ease and efficiency by this tooling setup. All slides and tools are placed at correct angle to the work. Tools are mounted on riser plates, permitting pre-setting for quick change-over and adjustment. Rigid support eliminates chatter on heavy forming cuts.



READY NOW! Write today for new Catalog 1159-A on Gisholt MASTERLINE Simplimatic Automatic Lathe. Fully illustrated—shows 31 typical jobs.



GISHOLT

MACHINE COMPANY

Madison 10, Wisconsin, U.S.A.

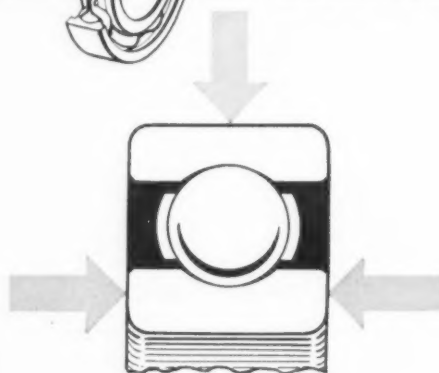
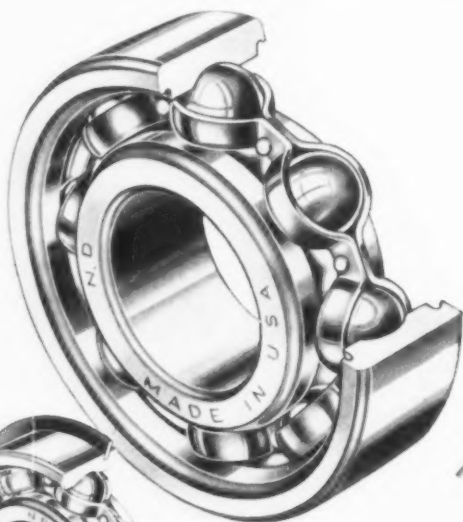
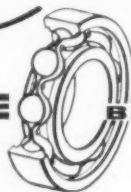
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FACTS

about

NEW DEPARTURE

BALL BEARINGS



The Word
Versatile

Fits Like A Glove!

Fits because—this basic New Departure ball bearing, more widely used than any other antifriction type, does much more than carry RADIAL loads—it locates the shaft it supports against THRUST LOADS FROM BOTH DIRECTIONS equally well!

Fits because—with a simple snap ring added, it does away with inside housing shoulders, simplifying mounting and cutting machining costs!

Also—with efficient Senti-Seal added, without change in exterior dimensions, it eliminates a separate outside closure—assures protection from outside dirt!

And—with Senti-Seals on both sides, this same basic bearing does away with all separate seals, eliminates all need for lubricating fittings—requires no attention for greasing!

Finally—it is a long-lived, non-separable unit that calls for no shims or other devices for periodical adjustments.

So, specify New Departures of the type that assures you maximum application proficiency and economy.

BALL BEARINGS MAKE GOOD PRODUCTS BETTER

NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONN.

Process Alerts Steelmakers

Steel industry interest in de-sulphurizing and de-siliconizing is at a high pitch. When a firm outside the industry let it be known that it had a high speed de-sulphurizing process, it was swamped with over 40 active inquiries. The company is telling steelmen, "Come and look it over." Some steel producer is expected to lead the rest of the pack off on a chase soon.

Color Anodize For Less

Sheet aluminum can be anodized on one side by a new, continuous technique, said to reduce costs of labor and electricity. A wide range of colors can be applied, including gold, yellow, black, blue and green. A natural finish can also be produced for exterior applications.

Nylon On Metal Cuts Wear

Oiling critical machine parts to reduce wear sometimes means end-product waste due to oil drippings. One firm solved both problems by heating the machine parts and dipping them in finely-powdered nylon. Wear resistance improved about 500 pct and staining losses disappeared because the nylon coating needed no oil.

For Turnpike Drivers

Auto makers are eyeing a new gadget for turnpike travel that will keep car speed constant, uphill or down, without using the accelerator or brake to compensate. It will hold within two pct of the speed set, unless you hit the brake or override it with the gas pedal. All of the Big Three are interested, and the device may even appear on some of next year's models.

Improve Free-Piston Engine

An advanced design in a free piston engine has two years of test-proofing behind it and can be mass produced any time enough customers turn up. The engine produces pneumatic power in the form of hot gases, and can use this output to turn a turbine if shaft power is desired. Other-

wise, gas output can be used directly with compressors, for pressure-feeding combustion chambers, or for impulse or hydro-jet propulsion of boats. It operates economically on a wide range of fuels.

New Uses For Rare Metals

Credit atomic energy programs with pushing two more rare metals toward commercial applications: niobium and tantalum. Niobium powder has been made into tubing in England, where they've also found a way to recycle scrap. Here, the Atomic Energy Commission is working on fabrication of tantalum because it withstands corrosive effects of molten plutonium.

Tumble With Glass Beads

Heretofore, the list of materials used in the tumble-polishing of metals has included various abrasives, wood, leather, steel—even corn cobs. Now tumblers find that a new material—glass beads—will produce fine finishes on metals as well as on plastics.

For Better Gasket Seals

Tight seals at lower flange pressures are said to be possible with newly developed gasketing materials. A series of five high-density fiber compositions are aimed at high and low temperature applications where flange pressures exceed 800 psi. Choice of materials helps insure getting the best seal for any particular application.

More Import Woes

U. S. producers of specialty steels are crying the blues over imports of 52100 ball and roller bearing stock coming in from Sweden. Quantities are increasing because it's good quality steel and it can be delivered anywhere in the States for 20 to 25 pct less than the American alloy. Word is that the chief Swedish supplier has a six-month backlog of orders from U. S. customers. Imports of finished ball bearings also pose a threat to domestic producers. Certain sizes, especially, are being shipped in at marked price differentials.



Above is shown a Cleveland size 500 AH unit which operates the Kick-Off Drive for the cooling bed of a Birdsboro Merchant Mill at Phoenix Manufacturing Company—Steel Mill Division, Joliet, Ill.

CLEVELANDS drive these merchant mill cooling beds

FROM the merchant mills, white hot bar and rod stock shoots out on these cooling beds. And transmitting power smoothly and uniformly, to keep the beds rolling at mill speeds are the Cleveland Worm Gear Drives shown here.

Wherever motor power must be transmitted through a right-angle drive, efficiently, uninterruptedly, regardless of load or shock, you can depend on a Cleveland. Hundreds of thousands of Cleveland drives are in continuous, heavy-duty service, many on the job for twenty, thirty, forty years and more.

There are Cleveland models to meet every requirement. Write for Bulletin 145, which illustrates and describes the many types and sizes of worm gear speed reducers in the Cleveland line. The Cleveland Worm & Gear Company, 3282 East 80th Street, Cleveland 4, Ohio.

Affiliate: The Farval Corporation, Centralized Systems of Lubrication. In Canada: Peacock Brothers, Limited.

CLEVELAND
Worm Gear

Speed Reducers





TOLEDO: It's working hard and planning ahead for completion of the St. Lawrence Seaway in 1959.

A Lake Port Gets Set For The St. Lawrence Seaway

Metalworking Looks Ahead to Export Dividends

Toledo invests hard work and cash in job of preparing for opening of Seaway.

Port Authority and outside talent help spearhead plans for port expansion.

Federal aid will also be needed to deepen channel.

Metalworkers will be in position to expand on export operations.—By T. M. Rohan.

■ For Toledo, O., the future is the St. Lawrence Seaway. The man on the street, the banker, the businessman, the industrialist are literally ticking off the hours until the Seaway is completed in 1959.

Nearly everybody in Toledo and its environs has caught the fever. Hundreds of people are building their futures on the opening of the Seaway and its effect on the growth of their port on the extreme southwestern rim of Lake Erie.

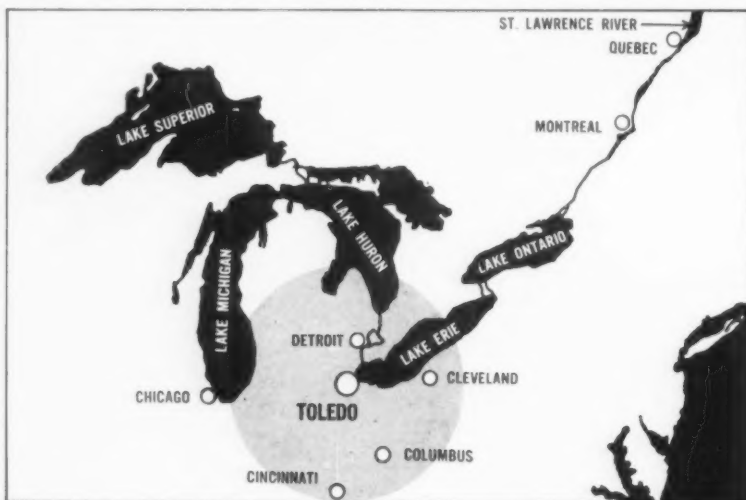
What It's Doing—For Toledo, a bustling city of over 300,000, this is not just an idle dream. Its people are investing good hard cash and a lot of hard work in the job of making the dream come true.

Here's what Toledo has done so far to get set for the Seaway:

It has created a broad-powered Port Authority, the only one of its kind on the Great Lakes. Its citizens have voted a special levy to



BUSY PORT: Already a bustling port of call, Toledo looks for Seaway to multiply annual shipping volume.



MARKETING AREA: Toledo's "zone of influence" has great potential, encompasses area within 200-mile radius of the city.



LIFT: 43-ton package was made by Toledo Marine Terminals.

provide Authority financing of \$2.8 million for five years.

Outside Help—It is bringing in outside talent to keep things moving. Authority Chairman W. W. Knight, Jr., has hired E. O. Jewell, formerly port director of New Orleans and Norfolk, Va., as general manager.

The National Bank of Toledo has set up an international department headed by energetic Rodolphe Huart, who served as a specialist in foreign trade in the Belgian consulate in New Orleans for nine years. The Toledo Trust Co. organized a foreign department last February.

Ambitious Expansion—The Port Authority is launching an ambitious expansion program. Its first objective is to convince the Federal government to spend \$3 million to dredge Toledo's 16.5-mile Maumee River channel to 27 ft., the same depth as the Seaway will be. Present channel depth is 25 ft.

The Authority has optioned 65 acres for a new, independently-operated general cargo terminal with 1900 ft frontage. It would have 80-ton crane capacity and handle 200,000 to 250,000 tons per year. Bids on the \$1.5 million project will be put out early this fall. Funds are earmarked for the actual work. An additional property is under negotiation for grain elevator sites.

Facts and Figures—Toledo Marine Terminals, only existing general cargo handler, is negotiating for additional breathing space. In operation seven years, it can handle three ships simultaneously, according to M. Dodd Tonjes, operating manager.

At the drop of a hat, Toledoans will cite facts and figures to buttress their forecasts that the town will one day be one of the greatest ports on the Great Lakes:

A Railroad Center—It is already third among U. S. railroad centers, with nine long lines, two short lines.

and three switching lines. It has terminal or transfer points for 122 motor freight companies and is only a short haul from the Ohio Turnpike.

It has 35 miles of frontage for harbor facilities. The protected harbor generally is open two weeks earlier and later in the shipping season and generally has year-round passage to Detroit.

Marketing Area—Its zone of economic influence, what economists call a "hinterland," has a great potential. This area extends eastward to where it breaks off in favor of Cleveland; south through western Ohio and eastern Indiana through Kentucky and Tennessee; westward to where it breaks off with Chicago, and slightly northeast where it splits with Detroit, 55 miles distant.

For shipping potential, Toledo's zone of influence extends beyond Chicago. Plants there can make overnight truck shipments into Toledo to catch an outgoing boat

rather than face a 2½-day delay in shipping from Chicago through Lake Michigan and down Lake Huron into Lake Erie.

Leading Coal Port — Kentucky tobacco growers and Ohio farmers already are shipping tobacco and grain from Toledo.

Toledo is the world's leading coal port, handling 26.5 million tons in 1955 or over half the tonnage of all Great Lakes ports. It ranks ninth among U. S. ports in total tonnage of coal, ore, grain, petroleum, cement, wood pulp, and package cargoes.

It hopes to double its total cargo movements to 72 million tons by 1975.

Bid For Mill—It is pushing hard to bring a steel mill into the area. Jones & Laughlin, among others, has shown some interest.

Toledo metalworkers are making their own plans for the day when the Seaway becomes a reality. They have been able to make only limited use of the port area thus far because most small lake ships are not regularly scheduled.

Metalworking Users — Biggest users of water shipments to date include Willys Motors, Inc., Toledo Scale Co., and Dana Corp.

Stephan A. Girard, Willys vice president and general manager, says his company last year exported 41,000 vehicles, will ship about the same this year. Of these, 2500 were shipped directly from Toledo on ocean-going ships. He forecasts that Willys will ship annually more than \$30 million in vehicles and parts through the Port of Toledo.

Shipping Goal — P. A. Greene, Toledo Scale Co.'s assistant export manager, says direct water shipments from Toledo could hit 400-500 tons per year.

Reprints of this article are available as long as the supply lasts. You may obtain a copy from Reader Service Dept., THE IRON AGE, Chestnut & 56th Sts., Philadelphia 39, Pa.

New Dip Process Plates Gold

No current or special equipment is needed in new process.

Developers claim improved finish, other advantages. It works on most metals.

■ A new dip-plating process to yield a better-looking and longer-lasting 24-carat gold finish has been developed by Baker & Co., Newark, N. J., precious metals specialists.

Called "Atomex," the process requires no current or special equipment—objects to be coated are simply immersed in a bath. Baker chemists stress the simplicity of the process by plating cuff links and tie clips using only Pyrex beakers and a hot plate.

Ionic Displacement—Dr. E. F. Rosenblatt, vice president and research director at Baker, said Atomex works by ionic displacement. "Attacked chemically, the base-metal surface sheds atoms into

the bath. These are replaced by atoms of gold from the bath."

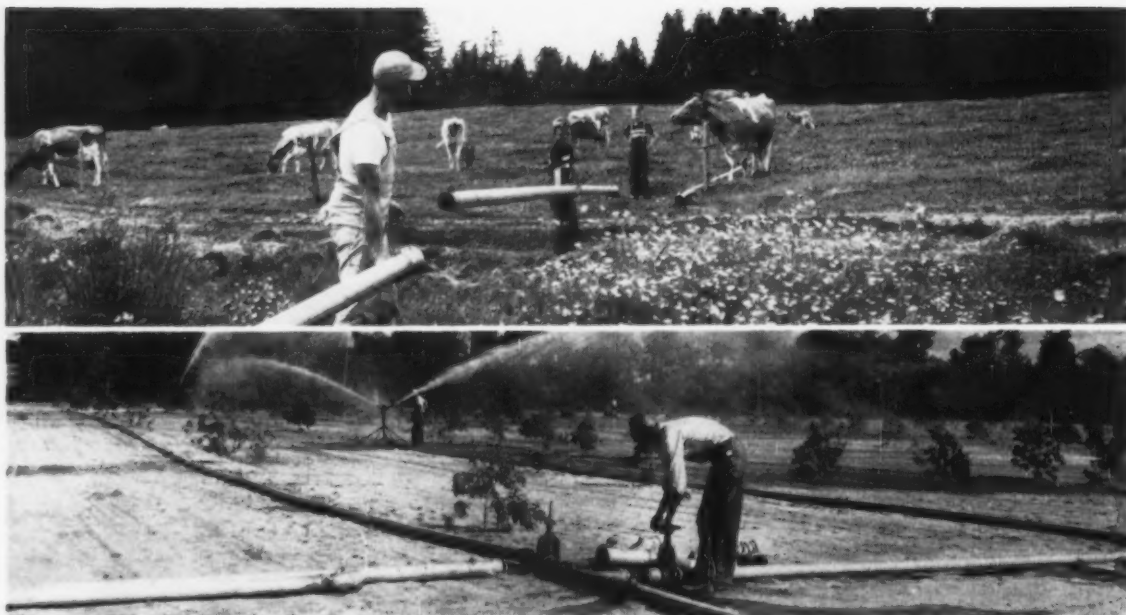
Five major advantages over electroplating are claimed:

1. Coating is denser, so that the same appearance is achieved with 35 pct less gold.
2. Since there can be no electrical shielding, there are no low- or high-density areas—all parts of the object receive a uniform deposit.
3. The gold actually interlocks with the base metal.
4. Analytical bath control is unnecessary because there is no free cyanide or carbonate build-up.
5. All the gold in the bath can be used.

The process has been successfully tested on copper and copper-base alloys, cadmium, zinc, nickel, iron, Woods metal, nickel-silver 12 pct, type metal, steel, die-cast alloys, soft solder, pewter, Alumel, cobalt and bismuth alloys. Coatings up to 0.000001-in. thick can be applied to most metals.



GOLD PLATING: With a new method devised by Baker & Co., Newark, N. J., many metals can be gold-plated by merely dipping, without special equipment. Advantages claimed: More even finish with 35 pct less gold.



Aluminum Co. of America photos.

Aluminum Pipe Woos Farmer

Producers say no farm should be without aluminum pipe for sprinkler irrigation.

Lightweight, easy maintenance, versatility among key reasons for growth of this market.

Aluminum pipe producers are aiming to join such distinguished company as Sears Roebuck Catalog and Bibs Overalls, in the heart of the American farmer. They are thumping for the use of their product for sprinkler irrigation systems.

So far they are doing pretty well. Here's how the Sprinkler Irrigation Assn., Washington, D. C., traces the growth in shipments of aluminum pipe for this purpose: 1946—1.28 million lb, 1947—3.12 million lb, 1948—10.12 million lb, 1949—9 million lb, 1950—18.1 million lb, 1951—15.5 million lb, 1952—22.35 million lb, 1953—30 million lb, 1954—32 million lb, 1955—67 million lb, 1956—35 million lb.

Carry Over Cuts Sales—Joseph

T. King, association secretary, notes that of the 67 million lb shipped in 1955, about 17 million lb were carried over, which accounts for the sag in 1956 shipments.

Other industry sources peg the 1956 figure at 45 million lb. On this basis, Kaiser Aluminum predicts irrigation pipe sales of at least 55 million lb in 1962.

R. L. Boke, irrigation market manager, Reynolds Metals Co., reports irrigation pipe sales for the first half of this year about equalled the same period in 1956. He is somewhat disappointed, but attributes the lack of an increase this year to floods and generally low farm prices.

Mr. Boke points out that sales in drought-ridden New England have been excellent. And the recent dry spell in the Southwest has prompted a sales upturn there.

Aluminum Pipe Advantages — This does not mean that aluminum pipe producers bank on disaster. They stress these long term advantages of aluminum for sprinkler irrigation systems:

Lightweight—One man can easily carry two lengths of irrigation pipe and couplers. This means less work, they say, substantial time savings in installing, and moving to various parts of a farm as needed.

Strength — Aluminum pipe has proved itself up to the physical and thermal shocks of year-round field duty.

Low maintenance—Pipe needs no painting, little maintenance of any kind. In above ground installations corrosion is virtually non-existent.

Versatility — Lightweight and ease of coupling makes aluminum pipe easy to lay over rough terrain and hilly fields.

Busy Off the Farm—Pipe and tubing producers are busy off the farm too. Kaiser sums up the potential 1962 market, by product form: Drawn—77 million lb, up 15 million lb from 1956 sales; extruded—48 million lb, an increase of 8 million lb over 1956; welded—75 million lb, more than double the 33 million lb sold in 1956.

The major markets, according to

Kaiser, will continue to be: Irrigation—55 million lb, furniture—60 million lb, oil and gas—15 million lb, and scaffolding—about 2 million lb.

Oil Market Looms Big — Oil and gas uses loom as the market with the biggest percentage increase potential. Kaiser pegs sales of pipe and tubing to this market in 1956 at only 3 million lb. Reynolds Metals says first half of 1957 sales to this market were "substantially greater" than those in the first half of last year.

W. B. Moore, Reynolds petroleum market manager, points to the greater acceptance of aluminum pipe in temporary uses such as water and gas lines at drilling sites.

A recent Reynolds' order was for six-inch pipe for a 42-mile, above ground pipeline in Columbia, S. A. Reynolds says that aluminum's ease and speed of laying was the big factor because of the rugged terrain involved.

British Steel Plan

A major five-year development plan for the British steel industry will see expenditures of about \$1.68 billion to increase capacity from current 22 million tons to 29 million tons by 1962.

According to the plan, the biggest product increase will be steel plates, principally for shipbuilders. Output is scheduled to rise some 60 pct by the 1962 target year, to about 4.2 million tons. Major boosts in production are also planned for sheet and tinplate, although no formula has yet been agreed on.

More Ore—The plan also calls for a substantial increase in supplies of iron ore. Domestic production will be stepped up from current 16.5 million tons annually to 22 million tons by 1962. And new reserves are also expected to become available.

The plan figures about 24 million of the 29 million tons projected output in 1962 can be sold in the British Isles. The rest will be for the export market.

Business Optimists Still Dominate

Second half '57 looks good to most of 205 industrial concerns surveyed.

Gains in production, orders, billings, and profits are predicted.

■ Fall business prospects look good. That's the opinion of most of 205 U. S. firms surveyed on the economic outlook by the National Industrial Conference Board.

Despite any bumps so far this year, the majority are hopeful about prospective new orders and dollar billings. Many plan to boost operating rates. And above 50 pct expect an improvement in before-tax profits during the rest of '57.

Particularly optimistic were manufacturers of electrical equipment, hardware, nonferrous metals, construction materials and industrial instruments, controls, and apparatus.

Here's how the respondents feel about:

Orders and Billings: More than half expect the dollar value of new orders will be higher this fall than in 1956. However, less than half predict new orders will come in at a faster rate than they did in the first half of 1957.

Even more encouraging are prospects for dollar billings. Almost two out of three concerns see a rise over year-earlier figures. More than half expect second half billings to increase over the levels of the preceding half. Among reasons cited for the advance: "Price increases, increased plant capacity, and non-occurrence of the adverse effects of the 1956 steel strike."

Production: Three out of five companies feel dollar value of production in the second half will top

the level of a year ago. More than two out of five plan to boost second half output above the level of the first half.

Capital Spending: Over two-fifths plan higher second half rates than they established in the first six months. However, three out of ten firms expect to decrease capital outlays in the last half of the year.

Profits: Better profits before taxes in the second half than in the first half, say more than 50 pct of the firms. Some 23 pct see lower profits and 24 pct expect income to stay at first-half levels.

Less encouraging are earning estimates for the entire year. Fifty pct feel 1957 profits before taxes will top 1956 levels, while 33 pct see smaller earnings and 17 pct expect to equal their 1956 performance.

Troubles, Troubles — Listed as troublesome business problems were the squeeze on profit margins, price cutting, overproduction and the tight money situation.

Despite the overall optimism, some of those questioned saw soft spots in business conditions. One petroleum executive, for example, mentioned "weaknesses" in steel production, but felt this was outweighed by "full employment, a high level of buying power, and sustained consumption."

Borrowing Cost Hike

The cost of borrowing money is nudging forward again. The Federal Reserve Board is pegging up by one-half a percentage point the discount rate in effect at its branch banks.

Result will be a further stiffening of the terms all banks charge their customers for loans.

How U. S. Steel Fights with Facts

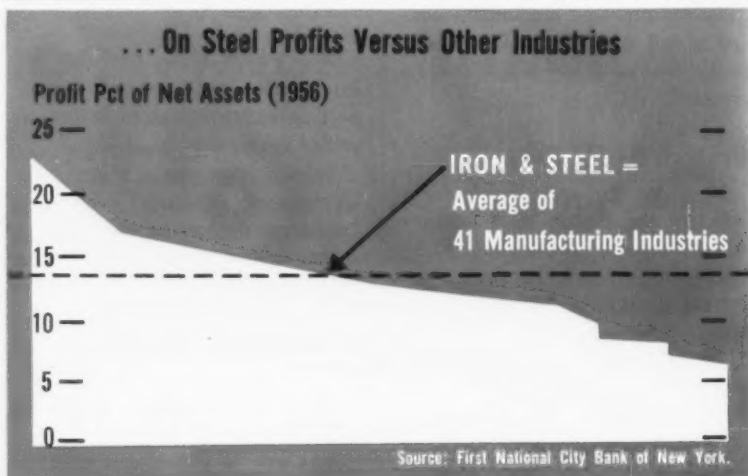
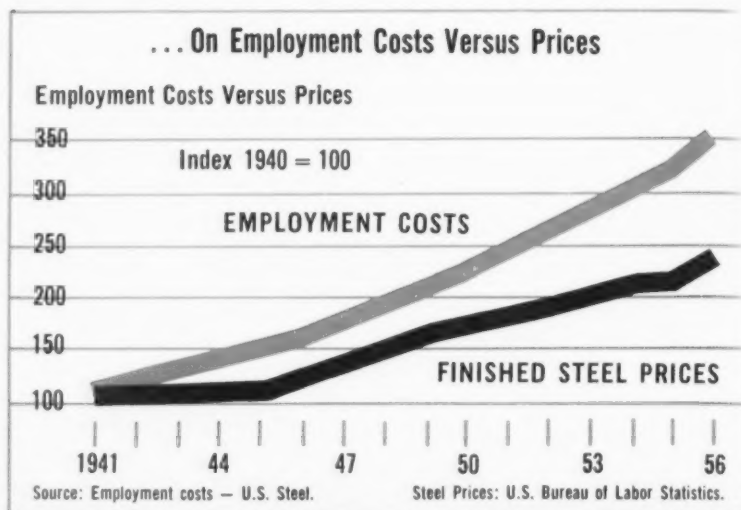
Charts and figures can be potent weapons. Here are examples of how U. S. Steel Corp. used them to advantage at Senate hearings on steel prices.

■ You can fight a good battle with charts and figures. U. S. Steel Corp. proved this last week and the week before when its top management testified at the Senate hearings on steel prices.

Thousands of words — written and spoken—went into the record during the seven days of U. S. Steel's testimony. But the charts and figures were a story in themselves. In graphic fashion, they showed how employment costs have risen faster than prices, why steel could not raise wages without raising prices, why it needs a better break on depreciation.

The charts showed also that employment costs have risen faster than productivity, that construction and equipment costs have raised steelmaking costs. And, finally, that steel profits are about average.

Other charts, not shown here, rebutted every conceivable criticism of steel in its relations with labor, its customers, and the public. Sen. Kefauver's committee can expect more of the same if and when other steel firms are called to testify.

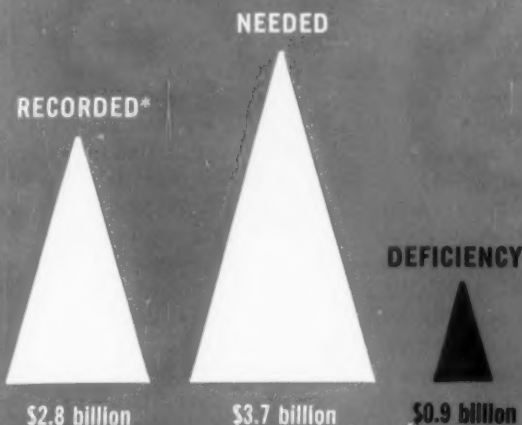


... On Whether it Could Raise Wages And Not Prices (Millions of Dollars)

If U. S. Steel Had Held Price Line in '56	Actual	At 1955 Selling Prices	Decrease	
RECEIPTS FROM CUSTOMERS DISPOSED OF AS FOLLOWS:				
Costs other than taxes on income	4229	3899	330	"... a drop in our income taxes from \$331 million to \$159 million ... a drop in our dividends, our income reinvested, or in both from a total of \$348 million to \$190 million ... if profits were to continue to shrink at this pace it would be a little more than another year before they were wiped out ..."
Taxes on income	3550	3550		
Dividends	331	159	172	
Income Reinvested	170	190	158	
Total	178			
	4229	3899	330	

... On Its Need For a Better Break on Depreciation

Wear & Exhaustion: Recorded Vs. Need (1940-1956)



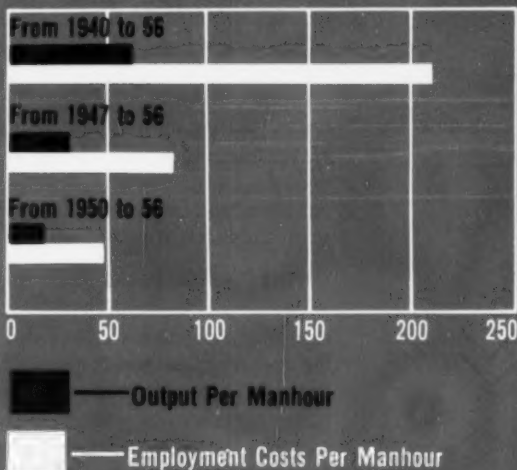
"... The Federal income tax paid as a result of treating this deficiency and the accelerated depreciation as income for tax purposes, aggregated \$608 million, or 22 pct of the taxes paid..."

*Regular depreciation, amortization, and accelerated depreciation (not deductible for tax purposes.)

... On Employment Costs Versus Productivity

Output and Employment Costs Per Manhour

Selected Periods 1940-1956 (Pct Increase)

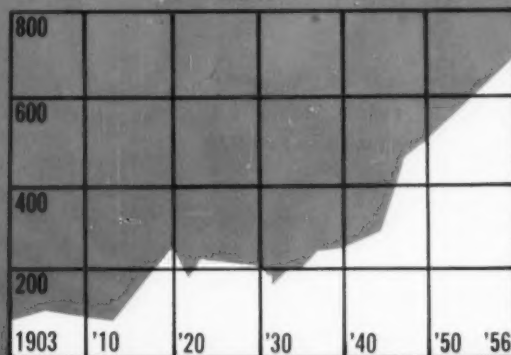


"...The Union admits that wages have risen more than productivity..."

Sources: Output per manhour—BLS; 1956 estimated. Employment costs—BLS, American Iron And Steel Institute.

... On The Rising Cost of Construction And Equipment

Inflation in Cost of Facilities Index 1913 = 100



Source: Engineering News—Record Construction Cost Index

How Steel Equipment Costs Have Risen

Equipment	Years	Pct Increase
Coal Washing Plant	From 1954 to 1957	17.6
Coke Battery	1924 to 1953	468.6
	1947 to 1957	123.3
20-ton Ore Unloader	1944 to 1956	142.7
376' Span Ore Bridge	1927 to 1956	348.8
Blast Furnace	1930 to 1957	425.4
45" Slabbing Mill	1938 to 1944	61.6
	1952 to 1957	36.5
Billet Mill	1949 to 1953	43.5
Skelp Mill	1923 to 1951	273.3
80" Hot Strip Mill	1936 to 1938	43.2
	1936 to 1952	294.7
56" Cont. Pickling Line	1945 to 1946	30.4
	1945 to 1956	261.9
5-Stand C-R Mill	1941 to 1952	293.2
38" Elec. Cleaning Line	1936 to 1946	256.0
56" Elec. Cleaning Line	1946 to 1951	114.9
Coil Annealing Furnace	1951 to 1957	70.9
38" Elec. Tinning Line	1950 to 1955	45.9
	1950 to 1956	54.1
Cont. (light gauge)	1947 to 1950	7.9
Galvanizing Line		
Cont. (heavy gauge)	1945 to 1953	141.7
Heavy Duty Engine Lathe	1946 to 1953	141.7
Open Side Planer	1946 to 1951	41.1
	1946 to 1955	67.2
Vertical Boring Mill	1925 to 1945	151.6
	1925 to 1956	460.7
40-Ton Locomotive Crane	1945 to 1950	46.2
	1945 to 1955	138.0
160-Ton Mixer Type Ladle Car	1937 to 1955	189.4
3000 H.P. Reversing Motor	1945 to 1950	69.1
	1945 to 1955	114.5

Aluminum Moves into Housing

Slow Start, But Potential Is Big

If only a few of the minor applications catch on, a big market in homes may be building up for aluminum.

Alcoa is moving carefully in the field, building up good will and selling builders on the product.

■ Aluminum's big pitch to the home building market is meeting a few bumps but is moving ahead rapidly.

The current drive started in January when Aluminum Co. of America announced a program to get builders, designers and buyers thinking in terms of aluminum for the home.

Big Potential—The aluminum company is pouring at least \$1 million into its home construction effort. To date, the return has included: A first name acquaintance with key builders and designers; a closer knowledge of the home building industry; and an aluminum showplace with several promising new products.

Alcoa thinks its program will click and it knows the payoff can be big. Guesses on the amount of aluminum going into the average new home range from 45 to 70 lb. Most of this is in aluminum windows. Alcoa is putting over 7000 lb into one home. If only the fringe applications are picked up—doors, trimming, hardware—this will mean important tonnage when ap-

plied to 1 million homes a year. If aluminum roofing catches on the way producers think it should, they will have a real bonanza.

Alcoa went into home construction with the view that the only way to learn all the answers and problems was to jump into the field. The company has kept its thinking fluid. Originally, the model home was seen as a \$25,000 unit with 1200 to 2000 lb of aluminum. With the first home finished, cost is up near \$50,000 and over 7000 lb of aluminum are being used.

Organization Plan—This cost is borne by the independent contractors who are putting up the new homes. Alcoa provides the design; it sells the builder a \$13,000 package that includes aluminum components and some home appliances. According to Alcoa, the house is designed to show off the functional and aesthetic possibilities of aluminum. It is not primarily intended for repeat building and reselling.

Alcoa's home makes generous use of wood. Bricks are used. There are broad stretches of glass, set in aluminum framing. A new aluminum roofing has been developed for the home. The outer walls are aluminum; inner walls are wood with aluminum trim.

Push Advantages—One point Alcoa is making with its home is that you can build a stylish dwelling making broad use of aluminum. Secondly, the company is pounding home the message that corrosion resistant aluminum reduces maintenance worries in the home.

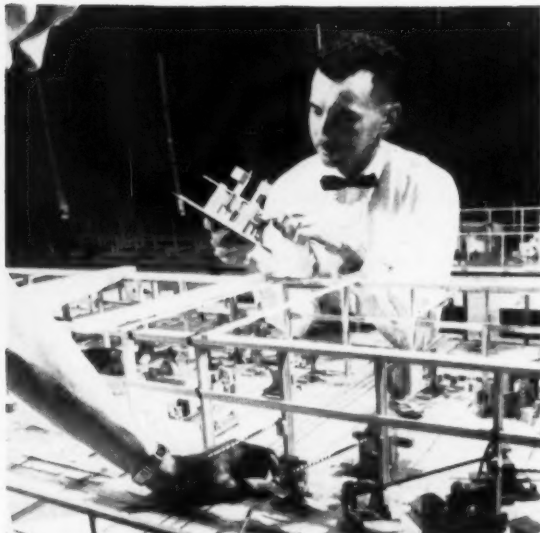
Big difficulty for Alcoa has been that its program is hitting in a year of sluggish home construction. At the moment, Alcoa is promoting ideas and laying the groundwork for future selling.



INSULATION: Aluminum foil for reflective insulation is a major item in Alcoa's campaign to promote use of aluminum in home building.



PREVIEW IN MINIATURE: Product of progressive station assembly line will resemble these models.



ENGINEER'S MODEL: ALCO engineers know exactly where machine tools will fit into machine shop.

How Alco Does It with Models

These aren't model train enthusiasts setting up their electric trains.

Alco engineers are using scale models to lay out modernization of locomotive manufacturing facilities.

■ Engineers at Alco Products are playing a \$1 million game with their models of locomotives, machine tools and plant areas.

It's all part of the planning and organization behind an extensive rearrangement of the Schenectady manufacturing facilities. The move is designed to give the company one of the most modern and efficient locomotive manufacturing plants.

Continuous Flow—Initial phase is scheduled for completion in December. At a cost of more than \$1 million, it will include extensive modernization of the present welding shop, sub-assembly and truck shop, and the miscellaneous machine shop.

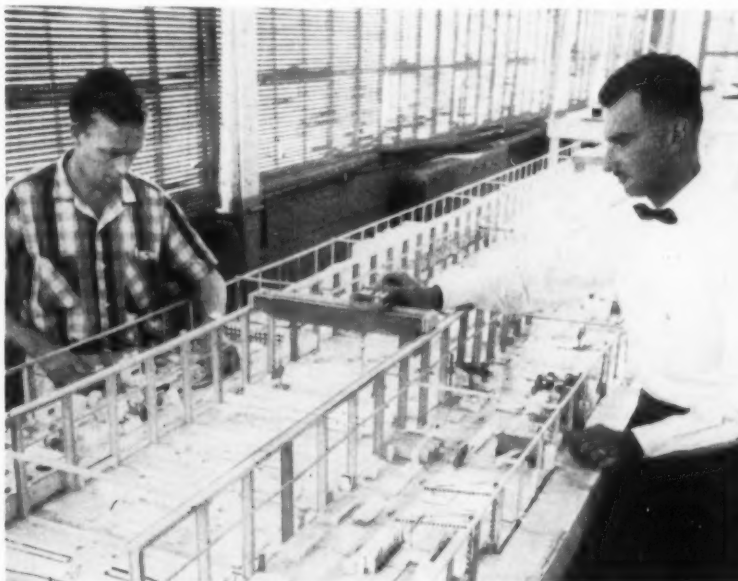
When the modernization is completed, these building will be laid out so that materials flow into what

is now the general welding shop, where progressive-station assembly lines will move locomotives from the large, prefabricated assemblies through final painting.

The company's present employment level in Schenectady will not

be affected by the rearrangement. The company will use its own personnel as much as possible.

The new facilities will replace the present locomotive erection shop, which has been sold to the Senoc Development Corp., Houston.



PRE-ASSEMBLY: Floor frames and trusses will be fabricated here before moving to assembly area in opposite half of building.

Meet The Portable Generator

It's Loaded With Market Potential

Capable of supplying electric needs of city of 2500, the unit may make its sales breakthrough next year.

It solves peak load problems, aids in the servicing of fringe areas.—By K. W. Bennett.

■ A diversification dark horse for 1958 and 1959 is the portable electric generator, heavy duty, mounted on a rail car or over-the-highway truck. It's a portable power plant capable of supplying the electric needs of a city of 2500. It's produced in 500, 1000, and 1850 kw models. Virtually the only producers at the moment of this generator type are Fairbanks-Morse and the Electromotive Div. of General Motors.

Electromotive isn't saying so, but

there's a growing opinion that this off-trail product will do better, saleswise, unit for unit, than the diesel locomotive ever did.

Peak Load Aid—Demand for electrical capacity has been swinging upward for five years at a staggering 8 pct a year. Coupled with this has been the problem of peak loads when summer air conditioners are turned on, or recently, in winter periods in areas where electric heating has become important.

The portable generator is designed to move in, care for the peak loads, and like the Lone Ranger, move on to another trouble spot when needed. One market potential: The short term, peak load that doesn't merit building permanent new capacity until population growth in the area boosts year-round electric usage to levels where

a permanent station becomes economic.

The portable generator can be purchased at \$102 per generated kw. A permanent substation would cost \$250 per kw as an initial investment.

Eliminates Line Loss—Another marketing angle: Thinly populated fringe areas served by utilities. Electric power, during transmission over long distances, may suffer a "line loss" of 20 pct of its potential. The portable generator is moved to the area of use, eliminating "line loss" and the need to build up the central power station until the fringe area merits a major capital investment.

A third marketing angle: Average cost of producing electric power is about 4 mills per kw hr. The portable generator using diesel fuel would cost 1 cent per kw hr. But an older central generating station may operate at 7 mills per kw hr, offsetting the advantage of newer stations costing little more than 2 mills per hr. The portable generator can be pulled in, fueled with a mixture of 6 pct diesel fuel and 94 pct natural gas. It will then operate at a 5 mil kw hr cost, replacing the older central station.

Completely Automatic—One feature Electromotive can probably be expected to push: The portable generator is completely automatic when attached to a fuel supply. The unit becomes a small central power station requiring no full-time attendants. Fairbanks-Morse may push a higher generating capacity.

Next year could see the initial sales breakthrough. While Electromotive hasn't announced full plans for the unit, it's significant that the manufacturing area of their locomotive plant was enlarged by 42 pct recently. And at a time when locomotives are no longer an item with a strong new market potential.



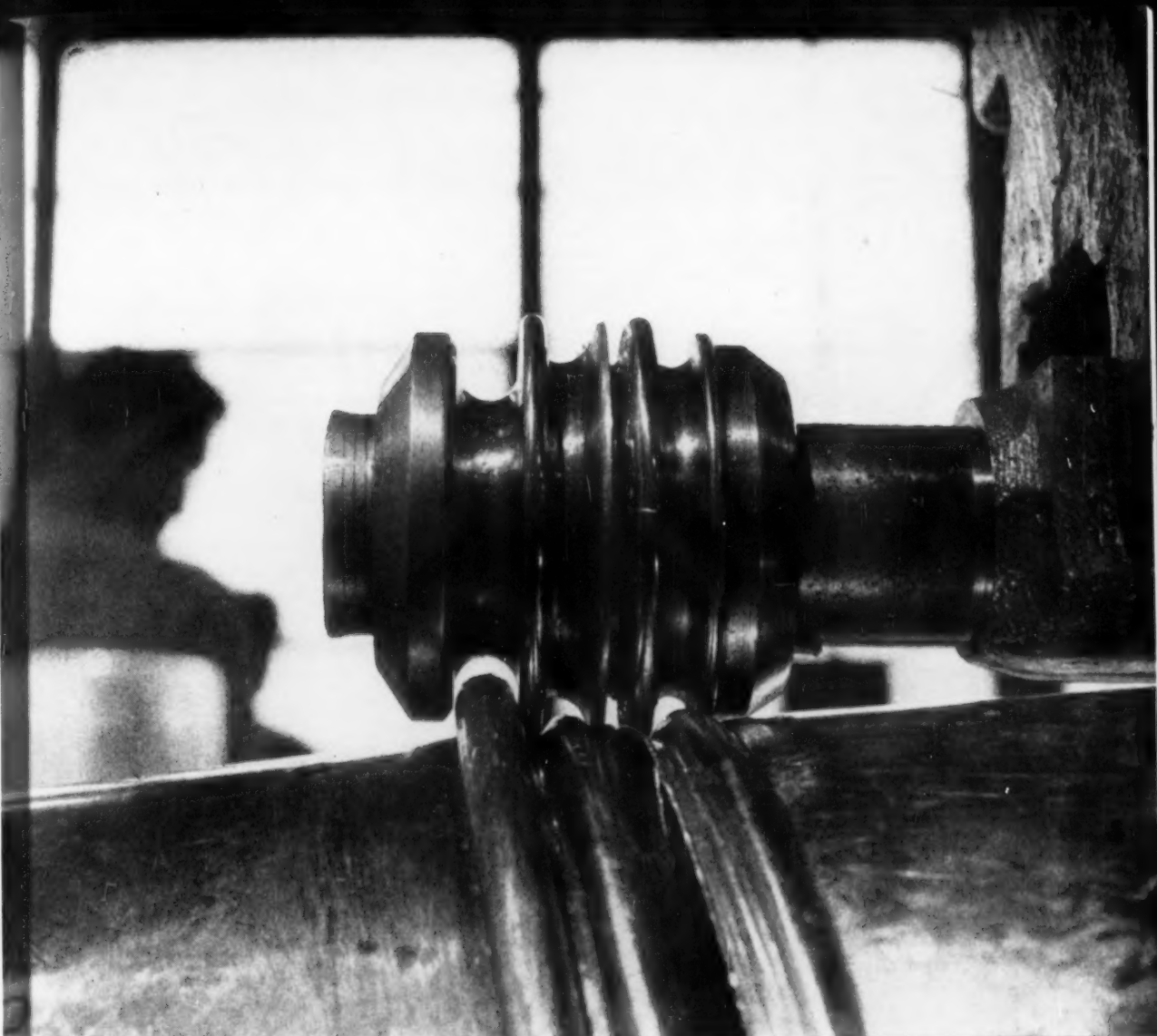
MARKETBOUND: Next year could see the portable power generator, here moved by a truck, come into its own. Less expensive than building a permanent power substation, it solves electrical supply problems.

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Weirkote has the tight, continuous-process zinc coating that can stand up to every fabrication procedure, bending, crimping, twisting, lock seaming, the deepest draws, and *stay* tight. No flaking or peeling problems. Far less chance of hidden flaws or only temporary corrosion resistance in the finished product.

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Why wait? Find out how Weirkote's corrosion resistance, strength and ability to come through severest fabrication stresses unblemished, can help you. For free booklet write to Weirton Steel Company, Dept. A-4, Weirton, West Virginia.



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WEIRTON, WEST VIRGINIA

a division of

NATIONAL STEEL CORPORATION



A Milestone At Youngstown



NOTABLE INGOT: Ingot from which this slab is being rolled contains the 120 millionth ton of steel to be rolled by Youngstown Sheet & Tube Co. Executives of the firm watch, at the Campbell Works, Youngstown.

Phoenix Output Up

The Phoenix Bridge Co., subsidiary of Barium Steel Corp., New York, reports a 12 month backlog of orders, and a fabrication rate which tops 1956 by about 50 pct.

J. A. Sisto, president and chairman of the board of the parent company called this an "encouraging sign" particularly in view of the good long range prospects with relation to the U. S. road building program.

New National Head

George W. Humphrey, former Secretary of the Treasury, is now officially chairman of the board of National Steel Co. The move comes as no surprise to readers of THE IRON AGE (May 2, p. 55).

Before his tenure of office in the Eisenhower cabinet Mr. Humphrey had been a director and chairman of the executive committee at National Steel, and was in fact one of its founders.

It has also been revealed that Mr. Humphrey was recommended for the position by the late E. T. Weir who stepped down from the top spot in National Steel in May.

The new National top executive will continue to live in Cleveland, but will have an office in National's headquarters in the Grant Building, Pittsburgh.

Automotive Gear Expands 50 Pct

The Automotive Gear Div., Eaton Mfg. Co., Cleveland, will spend \$2 million to increase manufacturing space by 50 pct. About 35,000 sq ft will be added to the Richmond, Ind., production operation, and about 2800 sq ft of additional office space.

The division, acquired by Eaton in March 1956, is now operating in 67,000 sq ft. Payroll of 300 will increase to 450 when the new addition goes into operation.

Automotive Gear Div. makes

gears for farm equipment, material handling, automotive, earth moving, machine tool and other industries. Principal products are bevel, straight spur, helical and flywheel starter gears.

SBA Continued

The Small Business Administration lost its bid to become a permanent fixture, but will continue to operate for at least another year.

Although Congress declined to grant SBA permanent status, the lawmakers did increase the agency's lending authority by \$75 million. Total is now \$530 million, for business loans, disaster loans, and prime contract loans.

The agency is expected to again seek permanent status next year.

GSA to Auction Plant

The government will auction off its World War II Diamond Magnesium Plant at Painesville, O., next month. The auction will be held Sept. 12 at the plant site.

Original cost of the plant was \$15.2 million. It was mothballed after the war, and reopened for a short time during the Korean fracas.

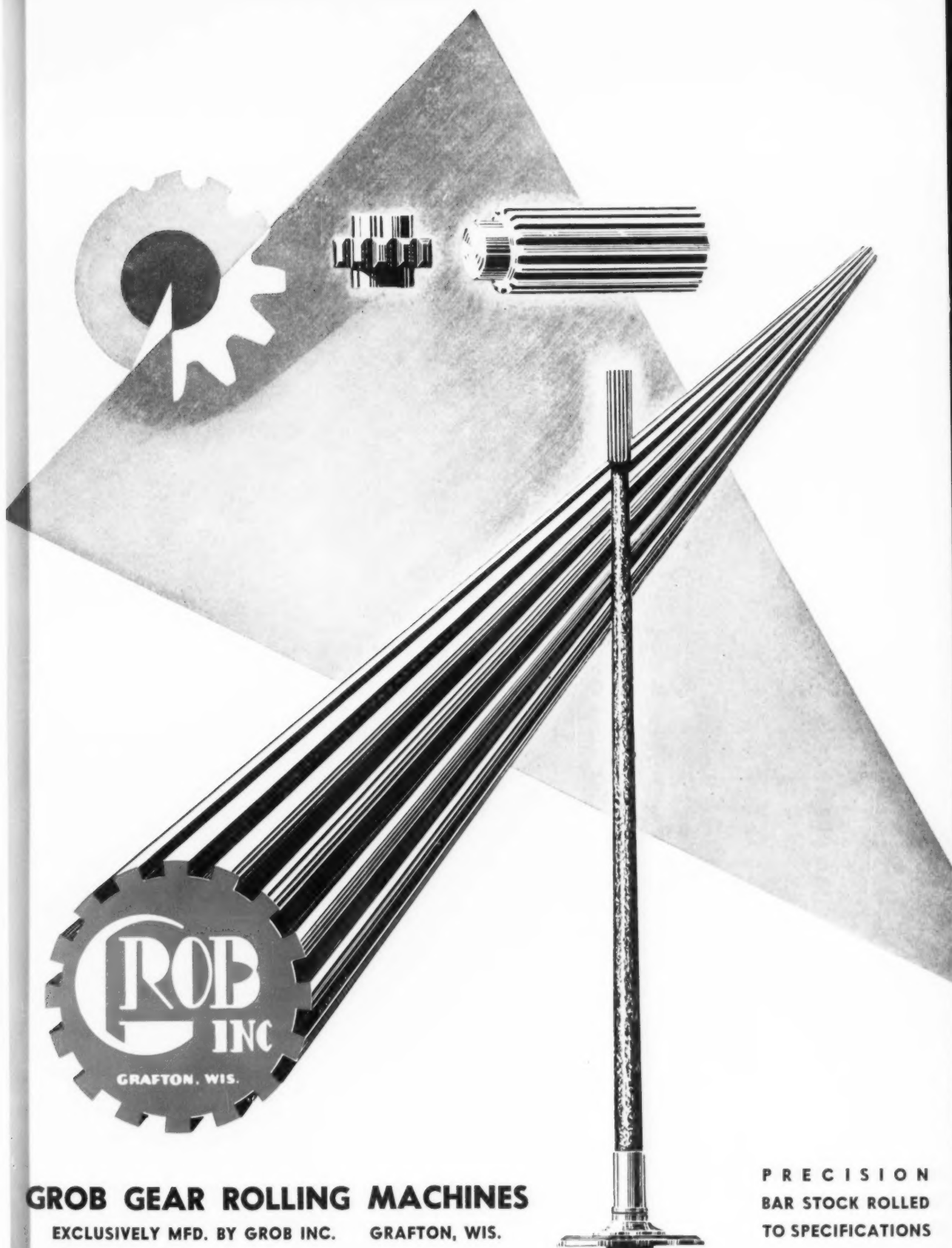
Capacity of the plant is 36 million lb a year. It consists of 28 buildings with 205,000 sq ft of floor space on 29 acres of land.

GSA rejected competitive bids this spring from Kaiser Aluminum and Chemical Corp., and a new firm, Wheeler Magnesium Corp.

Satellite Cost Climbs

Launching the new earth satellite is to require another \$34.2 million, the Navy tells Congress. Full sum now budgeted for the miniature moon is \$110 million.

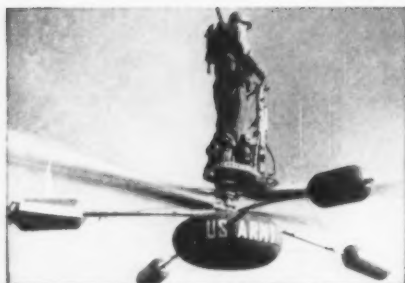
The Navy, in charge of this activity (Project Vanguard), says the preliminary work toward launching the instrument-crammed sphere is about on schedule. Two test firings of portions of the three-stage rocket have been conducted.



GROB GEAR ROLLING MACHINES

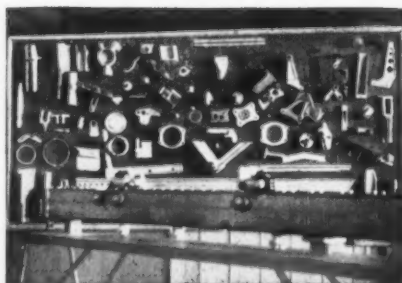
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PRECISION
BAR STOCK ROLLED
TO SPECIFICATIONS



◀ **Aerocycle**, a one-man helicopter now being tested by the U. S. Army, is one of the many aircraft for which Aeroaffiliates machines precision parts.

Some Examples of Aeroaffiliates' Work. All require fine tolerances and excellent finish. All were made with the help of Cities Service Chillo Cutting Oils.



"Fine Tolerances! Excellent Tool Life! With Cities Service Chillo Cutting Oil"

In probably no other machining operation are the tolerances so fine, the requirements so demanding as in aircraft work . . . especially when it's for the U. S. Army or Air Force.

But it is on such work that Aeroaffiliates, Inc. of Fort Worth, Texas, has become famous.

Every day, Aeroaffiliates employees must work with tolerances as fine as .0001, and their products must have an unusually good finish . . . so good that they are measured by a special gauge before the aircraft industry will accept them.

Obviously, this could play havoc with tool life

. . . "but thanks to Cities Service Chillo Cutting Oils, tool life and finish are the best ever," says Aeroaffiliates. "These cutting oils are equalled only by the help we receive from the Cities Service Lubrication Engineer, a man whose knowledge and help we greatly value."

Whatever *your* type of machining operation, there's a Cities Service cutting oil tailored precisely for it . . . and a Cities Service Lubrication Engineer to help you choose it. Call him in this week. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

CITIES SERVICE
QUALITY PETROLEUM PRODUCTS

Dr. John G. Trump

He Puts Atom Smashers to Work

The melting pot theory today may be applied not only to nationalities but to businessmen.

Especially is it applicable in firms where technical products are produced.

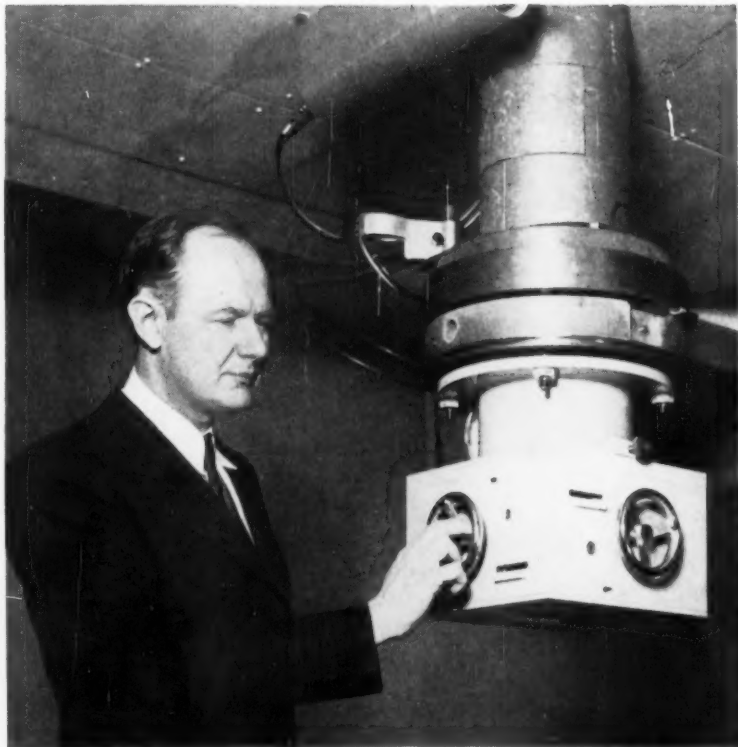
Management duties are more likely to fall on the shoulders of technical specialists.

■ In these days of admixtures—new alloys, corporation mergers, engineer-salesmen, and product diversification—Dr. John G. Trump might be regarded as an inevitable hybrid of the atom age: A scientist-businessman.

At Massachusetts Institute of Technology he is known to thousands of students and alumnae as Professor Trump of the Dept. of Electrical Engineering. In the world of business he is gaining a reputation as chairman of the board of High Voltage Engineering Corp., pioneer producer of supervoltage particle accelerators, more popularly known as atom smashers.

Eye for Business—The reason for Dr. Trump's unusual combination of occupations is simple. To sell nuclear equipment you have to know what you are talking about. The sales pitch, "Does anybody want to buy an atom smasher," just doesn't go. The only people who know enough about atom smashers to sell them intelligently are scientists—in this case, Dr. Trump.

He was among the first to see the possibilities for industrial application of a particle accelerator developed by Robert J. Van de Graaff in the early 1930's. Even as he worked on design and appli-



DR. J. G. TRUMP: Atom smashers will contribute greatly to industry.

cation of the equipment for cancer therapy, Dr. Trump's thoughts went beyond the medical field into industry.

Sells An Idea—Success of the Van de Graaff gear in inspecting military equipment and explosives during World War II, was proof enough for Dr. Trump that equipment of this type would provide a firm base for a new enterprise.

Enlisting support of the inventor, Dr. Trump the scientist presented his case to American Research Development Corp. With the technical questions cleared up, Dr. Trump the businessman then outlined his convictions regarding the future of supervoltage particle accelerators

in industrial radiography, processing and sterilization, and basic research.

Uses Will Grow—These were atom-smasher uses few had the vision to recognize. With financial backing from American Research assured in 1946, the new company delved into its specialty. Today there are over 150 accelerators used in industry. In 1956, the company reported net sales of nearly \$3 million. Much of the equipment is used to produce high energy X-rays for cancer therapy.

Dr. Trump believes particle accelerators will play an increasingly important role in growth of industrial technology.

how to rustproof cold rolled steel in shipment and storage



Proved by actual test! Unwrapped steel rusted within a few hours. Identical steel wrapped in Ferro-Pak showed no signs of rust . . . even after several months. Non-toxic chemical vapors from Ferro-Pak coat the steel with an invisible film that makes it impossible for rust to get the slightest foothold.

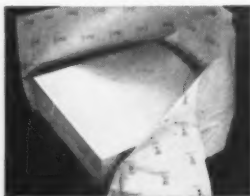
Even under adverse conditions, such as outside storing or shipping, Ferro-Pak provides complete protection. It is waterproof, strong,

yet highly flexible and easy to handle. The chemical rust inhibitor is compatible with oil and stays effective for long periods even when the humidity soars.

Whether you're a shipper or a buyer of steel, it will pay you to specify Ferro-Pak wrapping wherever rust is a problem. For an interesting idea brochure on many uses for Ferro-Pak, write Cromwell Paper Company, 4803 South Whipple Street, Chicago 32, Illinois.



How to rustproof a freight car—Ferro-Pak is used to line sides of car and to interleave coils, transforming ordinary freight car into huge rustproof package.



How to rustproof black plate—On this light gauge, dry, uncoated steel, rust can start from a fingerprint. Ferro-Pak keeps black plate rust-free even when the humidity soars!

FERRO-PAK[®]

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For over 38 years—
"Paper Engineers" for Steel

Anti-SUB State Laws Haunt Labor

States with laws conflicting with supplemental unemployment benefits were expected to fall in line.

Ohio and Indiana didn't see it that way. As a result, labor and management both face an embarrassing situation.

■ They don't like to talk about it, but a big segment of labor and an equally important part of industry are caught in a very embarrassing situation in two Midwest states.

Actually, it's nothing that either is trying to conceal, and both will need all the public support they can get to get out of it. But it is em-

barrassing. Because of state laws, labor and management with supplemental unemployment benefit contract clauses are not able to live up to agreements made in good faith.

Not Automatic—You will recall that when the first SUB contracts were signed between automakers and the United Auto Workers, it was done with the full knowledge that new legislation would be needed in some states. Ohio was particularly prominent, with so many auto plants located there.

Steel and the rubber industries followed along in much the same pattern and the agreements were put into effect in states where the contracts were cleared.

Void in Ohio—Recent decisions in Ohio which outlawed alternate plans have brought the situation to a head. These plans, in brief, were drawn up to bypass existing laws, but were ruled out.

But in Indiana, where there is one of the greatest concentrations of steelworkers, the law is even tighter. And a legislature controlled by rural areas is almost impossible to budge. You recall the recent right-to-work law passed there. Also prohibited is SUB.

This is an oversimplification of complex state laws, but the effect is that workers in these states are unable to reap the benefits guaranteed in their union contracts.

... And There's No Easy Solution

Strange Bedfellows — In these states, it has put the major industries, particularly steel and automotive, on the same side as their unions in backing legislation or possibly referendum to change the situation.

There is no indication of joint effort as yet, and probably none is likely, but both want legal right to fulfill their contracts. Management, whether it agreed to the principle reluctantly or not, is as intent as labor to live up to the contract.

Labor Goofed—In Ohio, labor may have only itself to blame. It tied in a sky-high increase in state unemployment benefits to the supplemental unemployment benefit vote. The unpopular increase killed whatever chance it had.

To further complicate the situation, small firms that do not have SUB contracts, or any noticeable pressure from their workers to

grant them, are bitterly opposed to any change in the law.

Labor spokesmen concede the situation may be hopeless, from

their point of view, in Indiana, less so in Ohio. They feel something will have to be done to solve the problem. But what?

Congress Can't Ease Money

A Lot of Noise—Don't expect too much out of the current Senate investigation of government fiscal policies. Former Treasury Secretary George Humphrey was put through the wringer, that's true. And William McChesney Martin took some lumps over the FED's tight money policy.

Spokesmen for easier credit and opponents of tight money will have their day in court and a lot of table thumping will occur. Sen. Robert Kerr, the Oklahoma oilman, is particularly vocal against the Administration's fiscal policies.

But Little Action—Tight money is here, and will probably stay for some time. The Federal Reserve Board is not subject to the whims of Congress and the Treasury Dept. policies are not likely to change even with Mr. Humphrey gone.

There is genuine concern about inflation and the public is becoming aroused. But coming up with the means of fighting it is something else again. A lot of people don't necessarily agree with Mr. Martin's policies, but they will probably stand while the threat of inflation haunts the country.



LOOKING BACK: How times have changed is shown by a comparison of the 1957 "88" Oldsmobile and the

1904 "Old Scout" Oldsmobile, which went from New York City to Portland, Ore., in only 44 days.

How a Car Uses Its Horsepower

Speed Gives Ground to Comfort

All of an engine's rated horsepower isn't converted into speed alone.

Before the axles get their share, a large slice goes to operate accessories—By H. R. Neal.

■ Advertising has conditioned the American car buyer to associate horsepower and speed. Suddenly, automakers are thrust into a position where their ad writers can't extol the back-snapping virtues of the Bolt-thrower "6" or the Siphon V8.

It has been remarked that automotive advertising writers now must work for a living. The question arises, who has been fooling whom?

Theory vs Practice—How many horses are galloping in an automobile engine with an advertising rat-

ing of 200 hp? Are you getting what the salesman said it was? It could very well depend on how you—or auto engineers—look at it.

One thing for sure, if an auto company says the Siphon V8 delivers 200 hp, it does. But where does it deliver? Maximum horsepower ratings for our theoretical engine are determined by running the bare engine on a dynamometer in the laboratory under ideal conditions. The conditions are these: No air cleaner, no generator, no engine fan, and spark and fuel adjusted to mean best power at each speed (every 200 rpm). A water pump and fuel pump are installed on the engine.

Tracing the Loss—By revving the engine up to 4400 rpm the dynamometer shows the engine putting out 200 hp. So that is the figure that you are told about. But somehow, that isn't what you are

getting delivered to the rear wheels. In fact, the actual horsepower going to the rear wheels is less.

Once an engine is installed in a car, it operates under conditions that are considerably less than ideal. A dual muffler cuts power by seven pct at wide open throttle, lesser amounts at lower speeds. A single muffler doubles the power loss of the dual system at wide open throttle. Add an air cleaner and you have just blown another three pct of available power.

Accessories Take Toll—But you can't stop there. Combustion chamber deposits cut power output four pct. Then manifold heat will take 1-5 pct, and the automatic distributor a like amount. So far, these components and engine deposits here take about 16 pct of the bare engine power, or 32 hp from our 200 hp engine.

Every car has accessories, and



About

PLA
ORG
TIN & TIM
CERAMIC
WELDING
METAL
HEAVY M

THE IRON

from: Metal & Thermit
to: The IDEA Minded

About WELDING



Taking a big bite out of costs

Built by Bucyrus-Erie, this mammoth all welded shovel makes shorter work out of coal stripping operations. In one bite, it scoops an 80 ton load into its 14 x 12 x 9 foot bucket . . . bigger than an average room. The shovel stands 13 stories high, weighs more than 4,000,000 pounds . . . and is built for long, trouble-free service with strong welded connections.

Metal & Thermit's "Murex" electrodes were selected for many applications on this big welding job. These versatile, easily handled electrodes are used throughout industry wherever strong and reliable welds with good impact qualities are needed.

About CHROMIUM PLATING



Key performance in typing

Every buyer of an IBM Electric Typewriter knows how easily and economically it operates. Little do they know, however, of the many quality details that go into its construction for extra dependability.

Trip levers, for instance—vital links between key and letter—are chromium plated for increased resistance to wear and corrosion. Unichrome SRHS® Chromium is plated from a Unichrome Continuous Chromium Plating Barrel which assures complete coverage of parts, large output and economical operation.

About PLASTISOL COATINGS



Jobs for plastisols become bigger . . . and still BIGGER

Interior of this large fume scrubber was sprayed with Unichrome Plastisol by Kaybar, Inc., Birmingham, Mich. The thick vinyl coating withstands abrasion, acids, alkalis, and many other corrosives. Being pore-free and seamless, the Unichrome Plastisol lining is now preferred for many jobs where rubber or plastic sheet linings were used formerly.

Note that sheer size is no longer a hindrance in applying plastisols. Firms like Kaybar with ever-expanding facilities are located at key points and can handle your big jobs, too.

PLATING MATERIALS
ORGANIC COATINGS
TIN & TIN CHEMICALS
CERAMIC MATERIALS
WELDING SUPPLIES
METALS & ALLOYS
HEAVY MELTING SCRAP

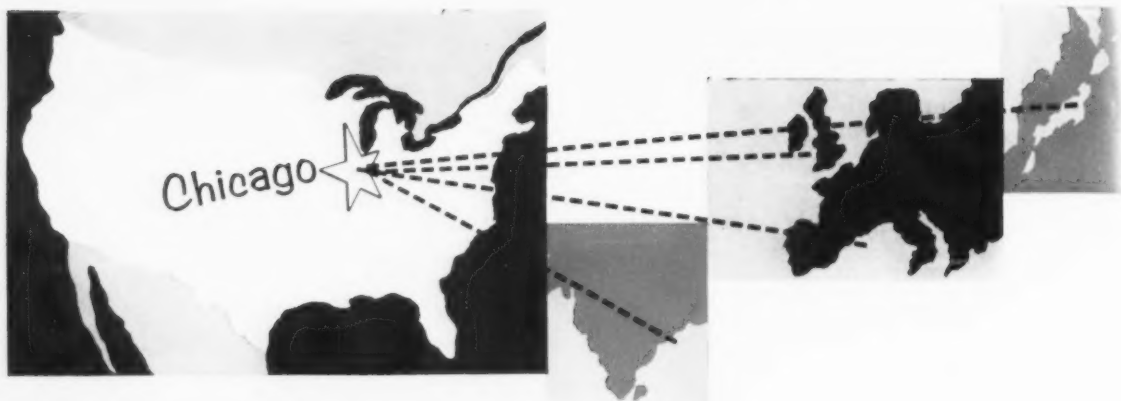


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In Canada: Metal & Thermit—United Chromium of Canada, Limited, Rexdale, Ont.



39th National Metal Exposition 2nd World Metallurgical Congress



Exhibit Space Available

Hundreds of manufacturers have reserved Metal Show space, but there are good locations still available in the vast new exposition halls of the International Amphitheatre. If the metalproducing or metalworking industries are your market, don't miss this show — write for display information now.

In the whole, wide, wonderful world of metals, for one fast-moving, action-packed week, Chicago will be world headquarters for metal men.

From wherever metals are made . . . from wherever metals are used . . . from all parts of the United States and around the free world, the responsible men of metals will move into Chicago the week of November 4, 1957.

Engineers and scientists . . . executives and production experts . . . the responsible men of metals will be in Chicago to see the 39th National Metal Exposition — the best, the biggest, the most important Metal Show of them all. Hundreds of manufacturers will place their best products and operating processes and equipment on display in the vast International Amphitheatre and New Exposition Halls. This great Exposition will make show history . . . will make metals history.

And this is only half the story. World authorities on metals . . . outstanding scientists from the United States . . . again, the responsible men of metals will be speakers at the 2nd World Metallurgical Congress and at the 39th National Metal Congress. Technical and practical sessions will begin on Saturday, November 2, and run continuously through Friday, November 8. Never before has such an array of metals engineering and scientific talent been assembled on so vast a scale . . . engineering developments of world-wide impact will be presented for all to hear and digest and discuss.

You will want to attend this great event, this world metals week in Chicago. Your organization may well wish to send management, engineering and sales representatives. Make the first move now — write for hotel reservation forms.

AMERICAN SOCIETY FOR METALS

The Engineering Society for the Metal Industry

7301 Euclid Avenue

Cleveland 3, Ohio

Cooperating Societies: Metals Division, American Institute of Mining, Metallurgical and Petroleum Engineers . . . the Society for Non Destructive Testing . . . the Industrial Heating Equipment Association.



Automotive Production

WEEK ENDING	CARS	TRUCKS
Aug. 17, 1957*	118,614	20,233
Aug. 10, 1957	118,864	18,279
Aug. 18, 1956	98,348	21,679
Aug. 11, 1956	108,167	19,493
TO DATE 1957	4,151,600	712,800
TO DATE 1956	3,915,300	735,200

*Preliminary Source: Ward's Reports

they take a pretty fair bite out of the power supply. Such necessities as a fan and generator skim off up to nine hp. Power steering takes more than 2 hp. Knock off another 11 hp for air conditioning and the engine is only putting out 145 hp. Without even moving more than 25 pct of the power isn't available to move the car.

The Imponderables—Automatic transmissions are now the rule rather than exception, but in operation they take up to eight hp. A standard transmission requires about 1.5 hp.

Other factors less easily calculated include wind resistance and road surface. Temperature and atmospheric pressure play havoc with horsepower as well—high temperature and low pressure reduce efficiency.

Return in Comfort—It takes a big engine today to give a car acceleration characteristics needed for safe swift passing on the highway. In the high speed range (over 60 mph) our theoretical car requires nearly four hp for each one mph increase in speed.

Ford Makes Exhaust Control Headway

Filter-tipped automobile engines could be just below the automotive horizon. Ford Motor Co. has revealed several significant accomplishments in anti-smog research. They include discovery of a promising chemical for "purifying" automotive exhaust gases.

Vanadium Pentoxide, a yellow powder, is the purifier or oxidation catalyst. It effectively eliminated more than 80 pct of offensive hy-

drocarbons for 100 hr in laboratory tests with a single-cylinder engine. Ford said the duration of this effectiveness equals about 4000 miles of actual driving.

New Approach—A second Ford development in anti-smog research is a "hydrocarbon integrator." It is described as a long sought instrumentation system which automatically, instantaneously and accurately measures hydrocarbon emission from the exhaust of an automobile under any driving condition.

Eugene F. Hill, manager of the chemistry department at the Ford Scientific Laboratory, explained that until recently most auto exhaust research had been directed toward modifying the engine, carburetor, or other control devices in order to minimize emissions which contribute to smog formation.

Shortcomings — Basically, this thinking followed the line that the most practical way to cut down on toxic exhaust fumes was to gain more complete combustion of fuels. "These methods do not appear to

be as practicable or operable as the use of an oxidation catalyst which removes hydrocarbons or converts them to inoffensive products," Mr. Hill said.

Scores of catalysts were screened in Ford laboratories and nine were selected for extensive evaluation.

"Platinum long has been recognized as a good hydrocarbon oxidizer but cost has made its use prohibitive. In testing that has been completed using leaded fuels, pellets coated with vanadium pentoxide surpassed even platinum in some performance characteristics," Mr. Hill reported.

Suggested Use—Vanadium pentoxide is a uranium by-product. As such, it is in excess supply at a cost which makes an exhaust device look more economically attractive.

Mr. Hill described a possible installation. An ordinary steel container could be used for a "converter" installation using the yellow powder. The device would have to be located near the engine so hot exhaust gas would be obtained quickly.

THE BULL OF THE WOODS

By J. R. Williams



**Something new...
made better
by aluminum**

These 120-foot high-tension towers carry power across the 50 miles between Aluminium Limited's Kemano generating station and Kitimat smelter.

12-story aluminum towers carry world's largest high-tension cables

Across Canada's weather-wild Kildala Pass, aluminum is meeting a new challenge in structural design. These giant towers withstand tons of snow and wind pressure... support half-mile spans of ice-laden cable. Yet they were delivered by helicopter in prefabricated sections for quick assembly on the spot.

Aluminum a Natural

Aluminum was a natural for this job, since its properties match the specifications for strength, weatherproofness, light weight and easy assembly. Comparable steel towers would be 65%

heavier and require 2½ times the man-hours to assemble.

Easily Fabricated

Created and engineered by Aluminium Limited, these towers also show how easily aluminum is fabricated. The tubular leg sections are formed in diameters to 38" by welding semicircular halves of rolled sheet. Crossarms are box girders up to 76 feet long, assembled with aluminum rivets.

New Fabricator Markets

With this knowledge and experience, independent U. S. fabricators can look

for more business in heavy structural applications. To assure a dependable supply of primary metal for these future needs, Aluminium Limited is investing \$3,000,000 a week in production facilities. Research, development and technical assistance programs are also expanding to further advance aluminum's position as the world's fastest growing metal.

Supplying U. S. industries with primary aluminum from Canada

Aluminium Limited Sales, Inc.

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Tax-cut Climate Is Improving

Congress Interested In Sadlak Plan

House and Senate members, wooing voters in '58, plan early start on tax-trimming measures.

Proposal by Rep. Sadlak would pare maximum rate for business and individuals to 42 pct in 5-year span.—By G. H. Baker.

■ A favorable climate for tax reduction in 1958 is in the making.

Congressional leaders on both sides of the aisle are planning to start work early next year on a variety of proposals to trim rates applying to individual incomes, corporation income, and the many wartime excises still on the law books.

Whether President Eisenhower will sign into law any tax-cut plans voted by Congress is an open question. But 1958 is an election year, and politicians of both parties usually strive to offer their best efforts to the voters just prior to the election campaigns.

Aid for Expanders—There are no lack of tax-reduction plans to choose from. All legislation now pending will still be "live" legislation next January, and there are several hundred tax-reduction bills before the Senate and the House.

One tax-cut plan that's gaining popularity among congressmen is that sponsored by Rep. Antoni N. Sadlak, R., Conn. Mr. Sadlak's bill (H.R. 6452) would not only reduce the rates on both corporate and individual income, but also ease the tax burden on new firms trying to gain a foothold in their industries. In addition, the bill would remove some of the tax penalties that now hamper firms—particularly smaller firms—in expanding.

Another important feature of the Sadlak plan is that it orders the White House to reduce government spending programs to fit the revenue picture.

Maximum of 42 Pct—Specifically, the Sadlak bill provides for reducing the maximum tax rate on both individuals and corporations to 42 pct over a five-year period. This means that the basic tax on corporations would be reduced from 30 pct to 22 pct. The surtax on net income over \$25,000 would be reduced from 22 pct to 20 pct.

The individual income tax on the first \$2000 of net income would drop from the present 20 pct to 15 pct. And gradual reductions are called for in each of the surtax schedules.

In time of national emergency,

all of the scheduled reductions would be suspended or postponed.

Voters Want Cuts—More and more, Congress is coming around to the realization that voters are dissatisfied with the government's continued wartime budgets. The temper of the times demands a reduced rate of spending and lower taxes. This national "state of mind," which is now beginning to affect congressional thinking (example: recent cuts in military spending), may provide the proper setting for the most meaningful tax-reduction program to emerge from the Congress in many years.

It won't come about easily, however. The big-spending lobby is well-entrenched. But if a better tax break for your firm means anything to you, write your congressman.

U.S. Lures Industry's "Top Brains"

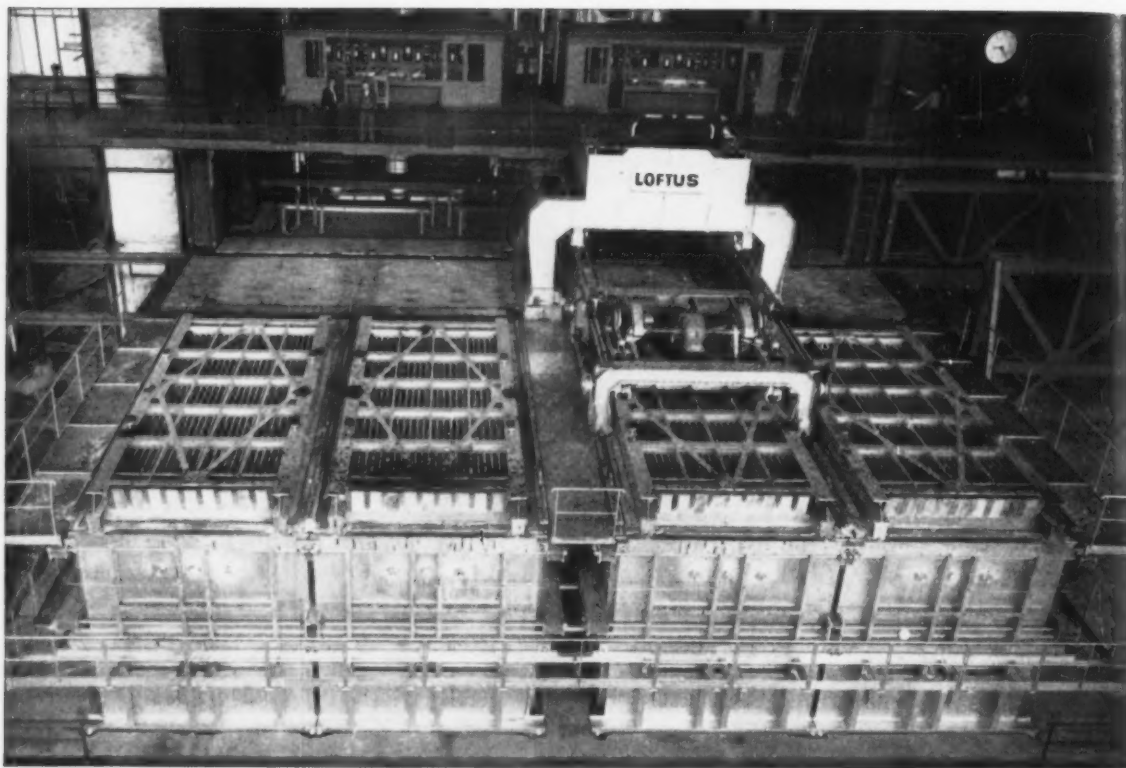
Counter-Offensive—The Federal government has decided to counter-attack in the battle with industry over "pirating" of top brains.

For several years, the halls and corridors of government agency buildings and Congress have resounded with complaints that industry has been luring top young government brains, particularly scientists and engineers, into business with top salaries. The anguished cries increased in volume, but nothing slowed the pace.

Streamlined Methods—Now, the President is generalling a counter-offensive. A recently appointed Career Executive committee is going to set up a new program to enlist smart, young executives in

private industry for the Federal government. The results will include streamlined methods of selecting, paying, and effectively using top civil servants.

Arthur S. Flemming, former director of the Office of Defense Mobilization, and now president of Ohio Wesleyan University, is chairman of the new group. Other members include: Frederick J. Lawton, a member of the Civil Service Commission and former Budget Director; Carter L. Burgess, president of Trans-World Airlines and former assistant defense secretary; Robert Ramspeck, vice president of Eastern Air Lines and former congressman, and Willard S. Paul, president of Gettysburg College and former assistant director of ODM.



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THE

West Is Economically Robust

Outlook Good Despite Aircraft Cutbacks

While aircraft's dropoff is disturbing, its over-all effect won't be drastic.

Metalworking's at peak levels, steel mills are busy and manufacturing employment nears all-time high.—By R. R. Kay.

■ Don't be rocked by the aircraft industry's cutbacks and employment dropoffs. The West Coast economy is in robust health. And the outlook is good, too.

The facts show: (1) Almost every segment of metalworking is at peak levels. (2) The Coast's steel mills are running at over 100 pct of capacity—and have been since the first of the year. (3) Despite the aircraft industry layoffs, manufacturing employment is almost at its all-time high.

Eastern businessmen are stepping up interest in Farwestern industrial markets. They're looking mostly to California with eyes focused on Los Angeles.

Centered in L. A.—Why? These two market facts help spell it out. Almost 90 pct of the Farwest's industrial plants are in the three West Coast states. California has the lion's share, an imposing 75 pct, and turns out close to 70 pct of value added by manufacture.

The big concentration within California is in the Los Angeles metropolitan area. It's now the nation's third largest industrial center—and bucking for second place. Fifty percent of the factory workers in the 11 Western States draw pay checks in the Los Angeles area.

And here's the latest word from the U. S. Census Bureau. In the next five years there'll be a 15 pct popu-

lation jump in the West Coast states. That compares with a predicted national hike of 8.6 pct.

Expansion Outlays—California's Finance Dept. is now figuring the State's budget on the basis of a 16 million population in a couple of years. Every day 1560 new residents turn up—all good customers.

More marketing facts: Over \$650 million was earmarked last year for southern California's new plants and expansions. And another big year is shaping up.

A good slice of the expansion is in Kaiser Steel's \$194 million program. Much of this steelmaker's added production will be in plate,

sheet, tin plate, and line pipe. These products are in greatest demand in the Farwest.

Hawaiian Steel Mill?

Will Hawaii get a steel mill? (See *The IRON AGE*, March 14, 1957, page 111.) The market seems to be there for a small plant.

All types of construction are at record highs. Two-thirds of the food and nine-tenths of all other commodities used in Hawaii come from the mainland. The steel mill would help make the Territory a bit more self-sufficient. At present, for example, it costs about \$25 to bring in a ton of reinforcing rod.

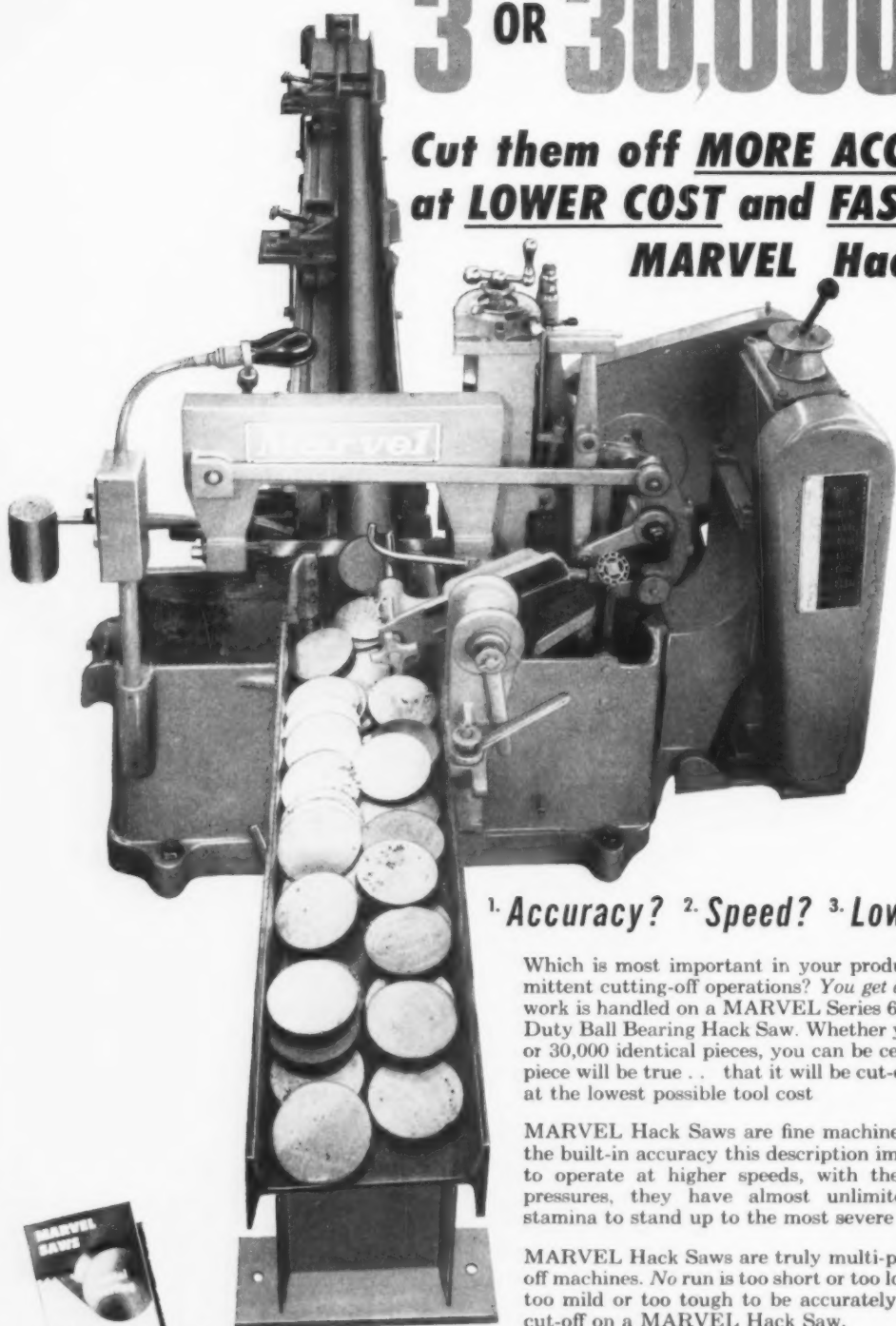
Three Acres For Fabricating



CAPACITY HIKED: Representing a 50 pct increase in capacity over former facilities, this Bethlehem Pacific installation at Torrance, Calif., provides complete fabricating of structurals for buildings and bridges.

3 OR 30,000 PIECES

**Cut them off MORE ACCURATELY
at LOWER COST and FASTER on a
MARVEL Hack Saw**



1. Accuracy? 2. Speed? 3. Low Cost?

Which is most important in your production or intermittent cutting-off operations? *You get all 3* when your work is handled on a MARVEL Series 6A or 9A Heavy Duty Ball Bearing Hack Saw. Whether you're cutting 3 or 30,000 identical pieces, you can be certain that each piece will be true . . . that it will be cut-off quickly, and at the lowest possible tool cost.

MARVEL Hack Saws are fine machine tools, with all the built-in accuracy this description implies. Designed to operate at higher speeds, with the heaviest feed pressures, they have almost unlimited power and stamina to stand up to the most severe service.

MARVEL Hack Saws are truly multi-purpose cutting-off machines. *No* run is too short or too long, *no* material too mild or too tough to be accurately and efficiently cut-off on a MARVEL Hack Saw.



Catalog C56 has complete details, facts and figures on MARVEL Metal Cutting Saws. Write for it today.

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S-1306

A Good Way to Start a Debate

Which Press: Mechanical or Hydraulic?

Question comes up at Fabricating Machinery Hydraulic Conference.

Mechanical called faster in strokes per minute, but hydraulic fans dispute this, claim other advantages.

Best answer is to study both and pick what is best for each operation.—By E. J. Egan, Jr.

■ The old debate on the relative merits of mechanical and hydraulic presses still rages. Apparently it will never be settled. Most recent battleground was the recent Fabricating Machinery Hydraulic Conference sponsored by Vickers, Inc., Detroit.

Here's one loaded question that was tossed out to the audience: "Hydraulic presses have great flexibility in stroke length, shut height, pressure and speed. However, in general, they cannot compete with mechanical presses in strokes per minute. What are hydraulic press builders doing to put their equipment in a better competitive position?"

Strokes Not the Key—E. W. Bliss Co.'s S. H. Durbin was first to grab the ball, saying: "It's my opinion that strokes per minute is not the deciding factor in choosing between a hydraulic and a mechanical press. Many hydraulic presses can outcycle mechanical types."

A moment later Mr. Durbin very properly switched gears. "Where uniformly dense metal is required, the hydraulic press works to a set, controlled pressure which yields the same result every time even though multiple tooling varies and changes in length. It is very im-

practical, and almost impossible, to maintain multiple tooling of this type on a mechanical press where the slide moves to a given position and tooling must be in exact lengths to give the necessary result."

Some Are Fast—Mr. Carl Hammond, Erie Foundry Co. added that his firm had recently built three self-contained, hydraulic planishing presses that had fast enough action.

Fewer Hydraulic Rejects—Lake Erie Machinery Corp.'s E. S. Keyser commented: "We have hydraulic presses which, I believe, will out-produce mechanical presses in a

given tonnage size. You also have to consider the end result in production. Maintenance and downtime on a mechanical press is greater than with a hydraulic press, and the pieces you actually receive are far less."

And so the argument goes. Kicking the perennial question around is anything but a pointless pastime, however, because one clear fact emerges from all such discussions: You don't just "pay your money and take your choice." You will, if you're wise, take a lot of time to determine your particular job.

To Prevent a Supersonic Hotfoot



CONDUCTOR: Aluminum fairing skins are machined to a satin finish on a Monarch heavy duty lathe. Their function will be to carry heat away from the cockpit area of the U. S. Air Force F-102A jet interceptor.

INDUSTRIAL BRIEFS

Wired for Research—Hubbard & Co. will erect a research and development center in the Chicago area. Expenditures will be in excess of \$1 million. Located on a seven-acre site the facilities will accommodate electrical and mechanical laboratories. The company will install recently purchased complete high voltage laboratory equipment from Purdue University in the new center.

Tote That Alumina—Olin Mathieson Chemical Corp. is constructing a 2500-ft dock for unloading alumina from barges at its aluminum plant in Omal, O. It is designed to handle 15-barge tows arriving from the Ormet Corp.'s alumina plant at Burnside, La. Dravo is currently building a ship dock and bauxite unloader at the Burnside plant which will be used in transporting alumina from Burnside to Omal.

Batting Three for Three—Minneapolis-Honeywell Regulator Co. has leased a new \$300,000 plant in Fall River, Mass. This facility will produce electronic industrial controls. It will be a manufacturing unit of the Industrial Div. The Fall River plant is the third for Honeywell in Massachusetts.

Name's Not the Same—Reynolds Metals Co.'s alumina plant at Corpus Christi, Tex., has been named the Sherwin Plant. The new name becomes effective immediately, replacing La Quinta by which it was formerly known. Change of name commemorates R. S. Sherwin, Sr., a former Reynolds' vice president.

Cash on the Line—Lear, Inc., Santa Monica, Calif., has established a Patent Incentive Plan. Its inventor-employees may receive cash payments ranging from \$25 to more than \$20,000 on each of their inventions. The corporate-wide plan is intended to accelerate the company's patent program and to advance the science of aeronautics.

Mud from Mykonos—A modern mill has been erected for processing high-grade barite on the Greek island of Mykonos. Magcobar (Magnet Cove Barium Corp., Houston, Tex.), one of the Dresser Industries, will process the barite into Magcobar drilling mud for use by oil drillers in the Middle East, Europe, N. Africa and elsewhere throughout the world. By 1959 Dresser expects its international sales to exceed \$100 million annually.

Ore Boat's Acomin—Shenango Furnace Co. of Pittsburgh is planning to build a new ore-carrying ship on the Great Lakes. The vessel will have an ore-carrying capacity of 25,000 tons. The ship is expected to be completed by the spring of 1959 at a cost of approximately \$8 million. Contractor is American Shipbuilding Co. of Cleveland.

Changing Letterhead—The Cold Metal Products Co., Youngstown, O., is now known as the Strip Steel Div. of Jones & Laughlin Steel Corp. All former Cold Metal plants, located in Youngstown, Indianapolis, Los Angeles and Kenilworth, N. J., are included in the Strip Steel Div. Business purposes of the manufacturing plants will be the production and sale of all J&L strip steel products.

Hot Bed Readied—Inland Steel has contracted for construction of a new sintering plant at its Indiana Harbor Works. It will be designed to expand its iron-making capacity by 300,000 tons a year. The plant will treat fine particles of iron-bearing materials before they are fed into blast furnaces. Six of the company's eight blast furnaces will be supplied with material from the sintering plant.

Alloy Advance—Electro Metallurgical Co. has expanded shipping and processing facilities for ferro-alloy briquets and other foundry alloys in the Great Lakes area. Deliveries of foundry alloys will be shipped from the company's Ashtabula, O., plant, its Chicago warehouse and the Alloy, W. Va., plant.

Barging Ahead—One of the world's largest inland barge enterprises has been formed through merger of American Barge Line Co. and the Commercial Transport Corp. The new company will be known as American Commercial Barge Line Co. It will operate on a river system from the Great Lakes to Mexico. The combined fleet of the new company will total 51 towboats and 570 diversified types of barges. Total number of employees of the new combine will be approximately 3,000.

New Power Chief—J. J. Stahl has been appointed director of the Power Equipment Div., Business & Defense Services Administration, U. S. Dept. of Commerce. Mr. Stahl is on loan from his position of regional manager, eastern area of the U. S., A. O. Smith Corp.

Ore from Oklahoma—Fansteel Metallurgical Corp. is nearing completion of its \$6.5 million tantalum-columbium plant near Muskogee, Okla. The facility is designed to produce tantalum and columbium, beginning with ores. Chemical, electrochemical and power metallurgy processes are employed. The output of this plant, in metal powders and ingots, will supplement and augment that of the main Fansteel plant at N. Chicago.

Change of Scene—Stewart-Warner Corp. has acquired the assets and business of National Governor Co., Oak Park, Ill. The National Governor business will be incorporated into the operations of the Alemite and Instrument Div. of Stewart-Warner, at the company's Diversey Parkway plants in Chicago. Frank Zimmerman, founder and president of National Governor, will serve Stewart-Warner in a sales advisory capacity.

Tulsa's Gain—The Magnecord Div. of Midwestern Instruments, Inc. will move to Tulsa, Okla., from Chicago. Magnecord was acquired by Midwestern last December and will maintain a sales office in Chicago.



New Southern Star...

When you are on the market for billets, bars or slabs of aircraft and commercial grade alloy, stainless or forging quality carbon steels, you can't do better than order from recently revitalized Green River Steel Corporation. Born in 1953 on the banks of the Ohio River at Owensboro, Kentucky, Green River is not only the newest electric steel producer in America, it is the foremost company in its classification south of the Mason-Dixon line. Now, backed up by Jessop, its new parent organization, it offers quality and service never possible before. Ingots poured from Green River's spanking new 60-ton arctype furnaces will continue to be processed under the exclusive Dornin patents which make Macro-clean steels of unmatched forging qualities and grain structure. But now, Green River is reaping the benefits of the years-ahead quality control methods and the excellent marketing organization of its parent Jessop. Today, more than ever before, you'll find it pays to do business with Green River—the steel industry's new Southern Star!

These Jessop district offices and representatives can now service you with Green River Products

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Chicago, Ill.
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Cleveland, Ohio
Detroit, Mich.
Hartford, Conn.
Indianapolis, Ind.
Los Angeles, Calif.
New York, N.Y.
Philadelphia, Pa.

Pittsburgh, Pa.
Toronto, Canada
Wallaceburg, Canada
Washington, D.C.

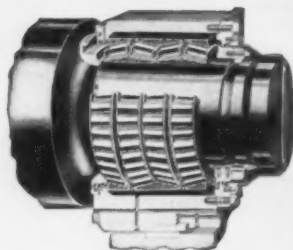
Representatives

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Kansas City, Mo.
Milwaukee, Wis.
St. Louis, Mo.
Utica, N.Y.

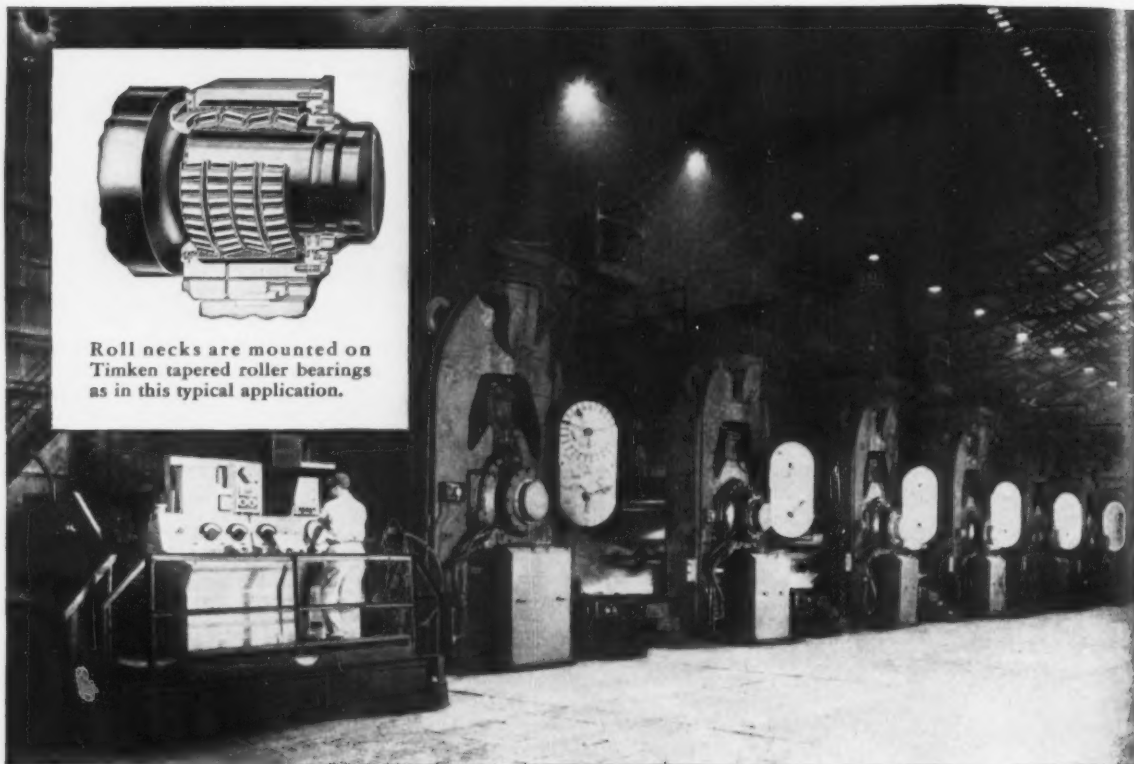
GREEN RIVER STEEL

CORPORATION • OWENSBORO, KENTUCKY

A SUBSIDIARY OF JESSOP STEEL COMPANY



Roll necks are mounted on Timken tapered roller bearings as in this typical application.



New design TIMKEN® work roll bearings average 75% more tonnage than previous design on hot strip mill

TO take the loads of high speed production and reduce mill delays, a Midwestern steel mill installed a new design of Timken® bearings on the work rolls of its 4-high 80" continuous hot strip mill. By the end of 1955, production figures revealed that the new design Timken bearings averaged 75% more tonnage in the fixed position—where service is most severe. This increased tonnage came from increased radial and thrust capacity in these new bearings. The net result was a substantial reduction in bearing cost. And this new design made higher performance possible with no increase in space. It's another example of how Timken Company engineering can help cut costs and reduce mill delays.

These new design Timken work roll bearings are compiling amazing records because 1) Timken advanced engineering designed these bearings for the job. 2) They were precision-manufactured for longer life. 3) Their true rolling motion, made possible by the tapered design and smooth surface finish, practically eliminates friction. Performance records compiled by mill operators everywhere prove Timken work roll bearings provide minimum cost per ton of steel rolled.

So, to minimize mill downtime with correspondingly lower operating costs, be sure you specify Timken tapered roller bearings in the mill equipment you build or operate. Look for

the trade-mark "Timken" on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".



This symbol on a product means its bearings are the best.



TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS ROLL THE LOAD

R. A. Brown, appointed vice president and general sales manager, Borg-Warner International Corp.

E. J. Hirshberg, appointed vice president, Tube City Iron & Metal Co., Glassport, Pa.

Karl Koehn, appointed asst. vice president, sales, Commercial Contracting Corp., Detroit.



N. P. Veeder, elected president, Granite City Steel Co., Granite City, Ill.

A. P. Stuhrman, appointed manager, Central Mfg. Div., Consolidated Electrodynamics Corp., Pasadena, Calif.

J. B. Reid, named magnesium sales manager, New York, The Dow Chemical Co.

K. H. Bender, appointed comptroller, Hyatt Bearings Div. of General Motors, Harrison, N. J.



R. W. Frank, elected vice president, Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.



J. L. Hamilton, Jr., elected executive vice president and general manager, sales, Granite City Steel Co., Granite City, Ill.

J. P. Beyser, named general manager, Verona, Pa., plant, Ingalls Iron Works Co.; **J. C. Agey**, promoted to asst. manager.

D. L. Buchanan, appointed director, Claims Div., Pittsburgh Steamship Div., U. S. Steel Corp.

H. M. Tucker, promoted to asst. manager, Traffic Dept., American Cast Iron Pipe Co., Birmingham, Ala.

F. L. Ross, appointed manager, quality control, Assembly Products, Inc., Chesterland, O.



Dr. O. T. Marzke, appointed vice president, fundamental research, U. S. Steel Corp.

MEN IN METALWORKING

C. W. Mohr, appointed manager, Industrial Sales Dept., Gustin-Bacon Mfg. Co.

P. B. Davies, appointed sales manager, Equipment Div., Proctor Electric Co.

Alvan Markle, appointed director, purchases, Walworth Co.

B. W. Sauter, appointed general manager, Electronic Tube Div., Westinghouse Electric Corp., Elmira, N. Y.

W. V. Dovenbarger, appointed superintendent, Processing Dept., Zanesville, O., Works, Armco Steel Corp., Middletown, O.



W. F. Hoelscher, elected secretary and treasurer, Granite City Steel Co., Granite City, Ill.

G. R. Madison, appointed technical assistant-power, Electro Metallurgical Co.

J. E. Tainter, appointed supervisor, general and personnel accounting, Chemical Materials Dept., General Electric Co., Pittsfield, Mass.

J. C. Neely, named general manager, Residential Window Div., Reynolds Metals Co.

P. H. Rice, appointed general manager, Custom-Aire Products

Div., Pacific Industries, Inc., San Francisco, Calif.; **G. W. Cheney**, will become general sales manager.

Reuben Gutoff, appointed manager, resin and fluids operations, manufacturing section, Silicone Products Dept., General Electric Co., Waterford, N. Y.



G. E. Drake, appointed vice-president, sales, Electro Metallurgical Co.

R. C. Lipps, named manager, and **H. J. Bichsel**, appointed engineering manager, Welding Dept., Westinghouse Electric Corp.

C. W. Raufus, appointed asst. district manager, Cincinnati sales office, Motch & Merryweather Machinery Co.

James Biggers, appointed general superintendent, Pacific Coast Engineering Co., Alameda, Calif.

J. N. Howlett, appointed manager, Wheel Guard Div., Morrison Products Inc., Cleveland.

G. K. Storin, named customer technical service supervisor, electrolytic applications, International Graphite & Electrode Div., Speer Carbon Co., St. Marys, Pa.

W. E. Vogel, appointed asst. manager, Atlas Drop Forge Co., Lansing, Mich.

F. B. Foley, appointed executive metallurgical engineer, Pencoyd Steel & Forge Corp., Philadelphia.



C. E. Ford, named new products marketing manager, National Carbon Co.

D. B. Otis, appointed director, planning, Military Products Div., International Business Machines Corp., New York.

Walter Murphy, appointed director, manufacturing, Forging Div., Transue & Williams Steel Forging Corp., Alliance, O.

C. O. Knierim, appointed manager, heat treat sales, The Gas Machinery Co., Cleveland.

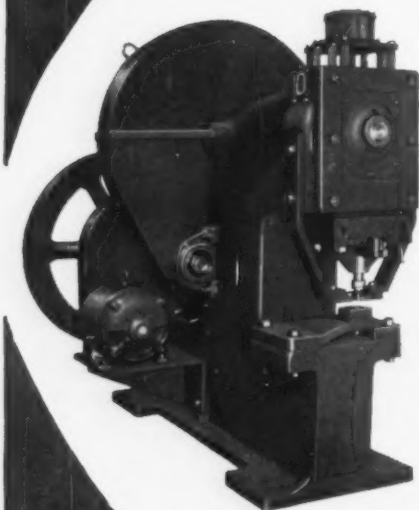
R. D. Allen, appointed chief metallurgist, South Chicago district, Republic Steel Corp.



Dr. L. S. Darken, appointed associate director, U. S. Steel's fundamental research laboratory, Monroeville, Pa.

Following promotions are within the Marketing Div. of Worthington Corp., Harrison, N. J. **W. C.**

it's the handiest punch in the fabricating shop



This 100-ton punch with architectural jaw is the "catch-all" machine for miscellaneous detail punching in many of the country's leading bridge shops. The usual quality features of Thomas construction are built into this machine:

- Rugged construction
- Air counter balance of the cast steel ram
- Anti-friction bearings
- Cut steel gears
- Push-button clutch control

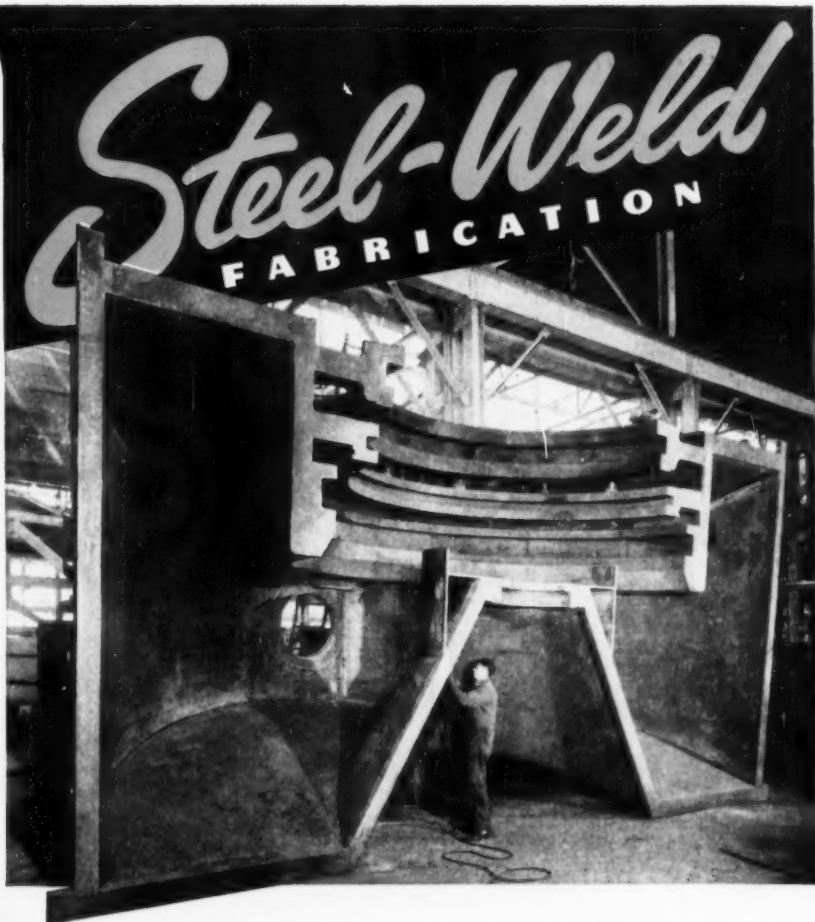
Heavier models available

THOMAS
MACHINE MANUFACTURING COMPANY

PITTSBURGH 23, PA.

Punches • Shears • Presses • Spacing Tables • Benders

58



Use WELDED STEEL
for Greater Strength
with Less Weight!

The weldment illustrated above is the Cover Section of the housing for a 300,000 kw Steam Turbine . . . it weighs 55 tons. This unit and those shown at the left are typical of the thousands of Steel-Weld Fabricated parts and assemblies produced by Mahon each year for manufacturers of processing machinery, machine tools, and other types of heavy mechanical equipment. Are you taking full advantage of the economies offered by welded steel components in your products? In the design of almost any type of heavy machinery, or mechanical engineering project, there are parts and sub-assemblies that can be produced more economically and more satisfactorily in welded steel . . . because, in weldments you save time and pattern costs, and you get greater strength with less weight, plus the additional advantages of greater rigidity and 100% predictability. When you consider weldments, you will want to discuss your requirements with Mahon engineers, because, in the Mahon organization you will find a unique source for weldments or welded steel in any form . . . a fully responsible source with complete facilities for design engineering, fabricating, machining and assembling . . . a source where design skill is backed-up by craftsmanship which assures you a finer appearing product embodying every advantage of Steel-Weld Fabrication. See Sweet's Product Design File for information or have a Mahon sales engineer call at your convenience.

THE R. C. MAHON COMPANY • Detroit 34, Michigan
Sales-Engineering Offices in Detroit, New York and Chicago

Engineers and Fabricators of Steel in Any Form for Any Purpose

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never before...

a *GUIDE* to MACHINING STAINLESS STEELS

The Answer... TO MAXIMUM PRODUCTION IN MACHINING STAINLESS

There is no single formula that is best for all machining jobs. Production speed is not only how fast the machine is running, but how long parts can be machined within a given period—no part being parts per hour can be sustained. The faster the tool quality the better the tool will wear—and the faster the machine will have to be changed. The faster the machine will have to be changed the faster the tool will wear—and the faster the machine will have to be changed the faster the tool will wear.

CARPENTER STAINLESS

TYPE NO. **A16**

Nearest comparable
Equivalent in
Ordinary Steels

100 100
110 110

TURNING		DRILLING		TAPPING		THREADING		MILLING		REAMING	
Surface Feet per min.	Feed	Surface Feet per min.	Feed	Surface Feet per min.	Feed	Surface Feet per min.	Feed	Surface Feet per min.	Feed	Surface Feet per min.	Feed
100	.001	100	.001	100	.001	100	.001	100	.001	100	.001
110	.001	110	.001	110	.001	110	.001	110	.001	110	.001
120	.001	120	.001	120	.001	120	.001	120	.001	120	.001
130	.001	130	.001	130	.001	130	.001	130	.001	130	.001
140	.001	140	.001	140	.001	140	.001	140	.001	140	.001
150	.001	150	.001	150	.001	150	.001	150	.001	150	.001
160	.001	160	.001	160	.001	160	.001	160	.001	160	.001
170	.001	170	.001	170	.001	170	.001	170	.001	170	.001
180	.001	180	.001	180	.001	180	.001	180	.001	180	.001
190	.001	190	.001	190	.001	190	.001	190	.001	190	.001
200	.001	200	.001	200	.001	200	.001	200	.001	200	.001

so much stainless working information so easy to use

a *GUIDE* to MACHINING STAINLESS STEELS

The Answer . . . TO MAXIMUM PRODUCTION IN MACHINING STAINLESS

There is no single formula for the machine's speed.
Production speed is not only how fast the machine can
or how many parts are completed. The faster the
more quickly the entire work will stop—and the more
the machine will have to be shut down for repairs.
The machine will have to be shut down for repairs.
The machine will have to be shut down for repairs.

CARPENTER STAINLESS
TYPE NO. 416
Nearest comparable
Equivalent in
Ordinary Steels

... of Relative Machine Unit

Corporation Brand Name	Type	Comparison
ABC & B	304	Pass 4
ABC 304-L	304L	Pass 4
ABC 316	316	Pass 4
ABC 316-L	316L	Pass 4
ABC 309	309	Pass 4
ABC 309S	309S	Pass 4
ABC 310S	310	Pass 4
ABC 317S	317	Pass 3
ABC 316-LC	316L	Pass 4
ABC 348	348	Pass 4
ABC 321	321	Pass 4
ABC 32	32	Pass 4

[illegible]

READING, PA.

THE CARPENTER STEEL COMPANY

so much stainless working information
so easy to use

Carpenter's new stainless slide chart is a guide

Here's the newest example—just off the press—of how Carpenter printed information is designed to help you and your men when working with stainless.

Now, right at your fingertips, you can have practical data to help you make the most of every pound of stainless you use . . . quickly answer many time-consuming daily questions.

For the first time, with slide chart ease, accuracy and convenience, you can quickly uncover working information about machining speeds and feeds, for turning, drilling, tapping, threading, milling and reaming. One entire side is devoted to such helpful facts as these—all taken from Carpenter's widely used "Notebook on Machining Stainless Steels".

The reverse side is equally valuable. Completely up-to-date, it gives the relative workability for many stainless grades . . . helps you quickly pinpoint the proper stainless for *drawing forming heading swaging welding buffing etc.*

For your personal copy, simply drop us a line on your company letterhead. If you'd like some extra copies of this NEW Carpenter Stainless Slide Chart for others in your plant, just tell us.



These formulas are just a sample of the help you can expect from Carpenter's NEW Stainless Slide Chart.

No. 1 — for obtaining tap drill size:

$$\text{Outside Diameter} \left\{ - \frac{.0130 \times \% \text{ Full Thread}}{\text{Number of threads per inch}} = \text{Drill Size} \right.$$

Example - for $\frac{1}{4}" \times 20$ thread:

$$.250 - \frac{.0130'' \times 75}{20} = .2013 \text{ or number 7 drill}$$

No. 2 — for obtaining percentage of thread a given drill will produce:

$$\frac{(\text{Outside dia.} - \text{drill size}) \times \text{number threads per inch}}{.0130} = \% \text{ of full thread}$$

Example - for $\frac{1}{4}" \times 20$ thread:

$$\frac{(.250 - .201) \times 20}{.0130} = 75.4\% \text{ thread}$$

Carpenter

Free-Machining Stainless Steels

The Carpenter Steel Company, 121 W. Bern St., Reading, Pa.
Export Dept.: The Carpenter Steel Co., Port Washington, N. Y.—"CARSTEELCO"

Cheek, appointed midwest regional sales manager; **J. H. Loomis**, named manager, Chicago district office; **H. H. Wise**, appointed St. Louis district manager.



D. K. Scallan, named manager, hardware market sales, Reynolds Metals Co., Louisville, Ky.

A. W. Krickl, appointed general manager, manufacturing, Badger Mfg. Co., Cambridge, Mass.

R. L. Roshong, appointed asst. to the quality control manager, Cameron Iron Works, Inc.



W. H. Santschi, appointed associate director, research-fabrication metallurgy, The Beryllium Corp., Reading, Pa.

J. J. Egan, Jr., named general sales manager, Van Straaten Chemical Co. of Chicago.

Dudley Vaughan, promoted to general superintendent, Fairfield Steel Works; **G. D. Brengelman**,



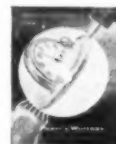
Numerical Control

A NEW APPROACH TO PRECISION IN PRODUCTION MANUFACTURING

— "Numerical Control" is an automatic, ultra-precision means of translating blueprint data into machine positions and, other functions. Successfully applied to Pratt & Whitney high precision Jig Borers, Hole Grinders and Rotary Tables which are usually restricted to toolroom use, Numerical Control makes the superior accuracy of this equipment available for efficient long run or short run production work where extreme precision is essential. It provides automatic operation without complex, expensive tooling or investment in special "one-job" machines. Scrap losses due to human error are practically eliminated since the machine can be placed under the control of a tape program.

Write for more information.

Pratt & Whitney Company, Incorporated,
10 Charter Oak Blvd., West Hartford, Conn.



JIG BORERS • ROTARY TABLES • KELLER MACHINES • TOOLROOM LATHES • VERTICAL SHAPERS • CUTTER AND RADIUS GRINDERS



PRATT & WHITNEY

FIRST CHOICE FOR ACCURACY
MACHINE TOOLS • GAGES • CUTTING TOOLS

a NEW protective coating
for the
NEW high tensile steels

Zincilate 410

Zincilate 410 meets all requirements
of Spec. MIL-P-26915 (USAF)

PREVENTS
HYDROGEN
EMBRITTLEMENT

REQUIRES NO
COSTLY PLATING
EQUIPMENT

NO LIMITATION
IN SIZE OR
SHAPE OF PARTS
TO BE COATED

The tremendous speeds being achieved by modern aircraft have created a whole new set of design engineering problems. New steel alloys, heat treated to secure higher tensile strengths, had to be developed to withstand the heat generated by extremely high speeds, and to resist the shock of high speed landings.

These completely new high tensile steels require a completely new type of protective coating. Being subject to even greater hydrogen embrittlement than ordinary steels when cadmium plated, these new alloys require Zincilate 410, a protective coating that eliminates all traces of hydrogen embrittlement.

Zincilate 410 (one of several Zincilate formulations) provides other outstanding advantages over outmoded protection methods. Zincilate 410 will increase productive output because the controlled time cycle and size limitations of plating are eliminated. Conventional painting equipment is used to spray, dip or brush Zincilate 410, thus no more costly plating equipment. Zincilate 410 can be applied in the field, without dismantling the damaged part for return to the plating plant. And you can apply Zincilate 410 in your own plant, saving more time and money.

If your product is now being cadmium plated, all these advantages can be yours by simply using Zincilate 410. You may be surprised by the first cost, but you'll be amazed by the savings, which are far greater. Why not outline your coating problem now, on your company letterhead please, so we can tell you frankly what Zincilate 410 can do for you?

Zincilate

CORROSION-RESISTANT,
ABRASION-RESISTANT,
WELDABLE, AIR-DRYED and
BAKED PROTECTIVE COATINGS

INDUSTRIAL METAL PROTECTIVES, INC., 402 HOMESTEAD AVE., DAYTON 8, OHIO

named general superintendent, Ensley Steel Works; **H. W. Bullard**, named asst. general superintendent, Fairfield plant; **J. J. Phifer**, named asst. to manager, production planning, U. S. Steel's Tennessee Coal & Iron Div., Birmingham, Ala.



K. B. Higbie, named associate director, research-process & extractive chemistry and metallurgy, The Beryllium Corp., Reading, Pa.

R. R. Miller, appointed Western sales representative, Consolidated Machine Tool Div., Farrel-Birmingham Co., Inc., Rochester, N. Y.

E. C. Jex, Jr., appointed sales engineer, Metal Products Div., Koppers Co., Inc., Cincinnati.

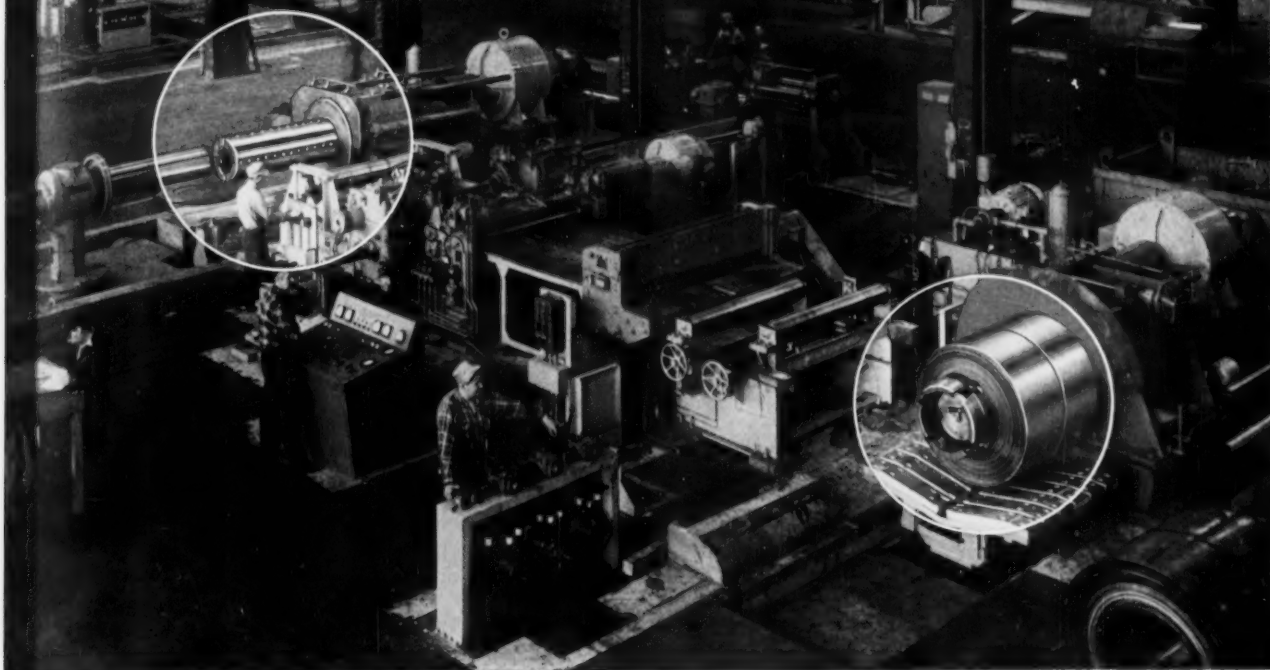


C. A. Mueller, named chief engineer, Gas Process Div., Lindberg Engineering Co., Chicago.

Dr. Ernest Peters, named section leader, Minerals & Chemical Engineering Group, Metals Research

WHAT TO
LOOK FOR IN . . .

SHEET & STRIP EQUIPMENT



there's a DIFFERENCE IN REELS

Balanced Drum Segments, interlocked and chrome plated to prevent scoring of drum.

Shafts mounted in anti-friction bearings with ample thrust and radial load capacity.

Hydraulic traversing and elevating coil carriage.

Coil Stripping Device (Tension Reel) prevents telescoping of coil.

OPERATOR EASE: Adequate drum expansion permits loading or unloading coils easily. Hydraulically operated strip aligner permits 6" movement either side of center line of line. Automatic Gripper Bar on Tension Reel grips strip from minimum to maximum without adjusting. Suitable for either over or underwinding of strip. On Payoff Reel, patented coil centering by adjustable stop plate supported by two

round steel racks . . . easily adjusted with handwheel. Indicator gives operator a clear view of strip width.

EASY MAINTENANCE: Oil Seals of special split design for drive housing; circulating oil system for drive with separate motor drive. Balance of unit easily serviced by accessible fittings or centralized lubrication system.

GOOD DESIGN: 4-segment Drum provides more contact with coil I.D. The Tension Reel starts winding any coil in an almost perfect circle. Aetna's design of reels puts minimum unit pressure on sliding shoes when full weight of coil is on the drum.

RUGGEDNESS: Helical Gear Drive—quiet and smooth, strong, less weight; heavy structural steel weldment with machined ways provides a rugged strong base for high speeds without vibration.

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THE AETNA-STANDARD ENGINEERING COMPANY

GENERAL OFFICES: PITTSBURGH, PA.

PLANTS: ELLWOOD CITY, PA., WARREN, OHIO

CONTINUOUS GALVANIZING LINES • CONTINUOUS ELECTROLYTIC TINNING LINES • SIDE TRIMMING AND SHEAR LINES AND OTHER FINISHING EQUIPMENT • CONTINUOUS BUTT WELD PIPE MILLS • SEAMLESS TUBE MILLS • DRAWBENCHES AND OTHER COLD DRAW EQUIPMENT • ROLLS AND CASTINGS • EXTRUDERS, MILLS, PRESSES FOR RUBBER AND PLASTIC



CHANGE ANY TOOL **in 5 SECONDS or Less!**

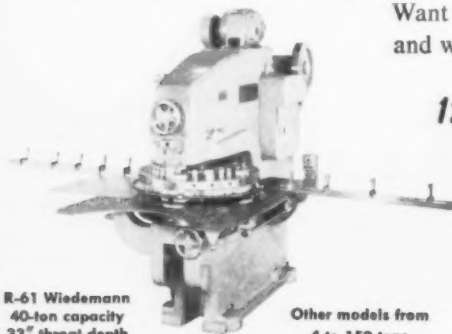
... and that means money in your pocket when you're piercing short runs of panels, chassis, truck parts, etc.

All tools are in the turrets ready for use. By simply rotating the turrets, a tool of any shape or size from 7" dia. down to .093" is brought into piercing position in 5 seconds or less. Turrets are locked to assure positive punch and die alignment. When desired, substitute tools can be installed in 2 minutes or less.

Rapid tool changing coupled with a quick-setting work positioning gauge eliminates setup and layout. Work is accurately pierced at high speed. As a result, short to medium run piercing costs are cut 60% to 90%.

Want proof? Send drawings of your work for time study and write for Bulletin 201.

12 to 32 Punches and Dies Ready for Use



R-61 Wiedemann
40-ton capacity
33" throat depth

Other models from
4 to 150 tons

WIEDEMANN MACHINE COMPANY

4213 Wissahickon Ave. • Philadelphia 32, Pa.

Laboratories, Niagara Falls, N. Y.

L. G. Johnson, appointed salesman, California and Arizona, Los Angeles sales office, The Cleveland Cap Screw Co.



B. T. Lanphier, named manager, research, The Carpenter Steel Co., Reading, Pa.



H. O. Beaver, promoted to production metallurgist, melting and hot working, The Carpenter Steel Co., Reading, Pa.

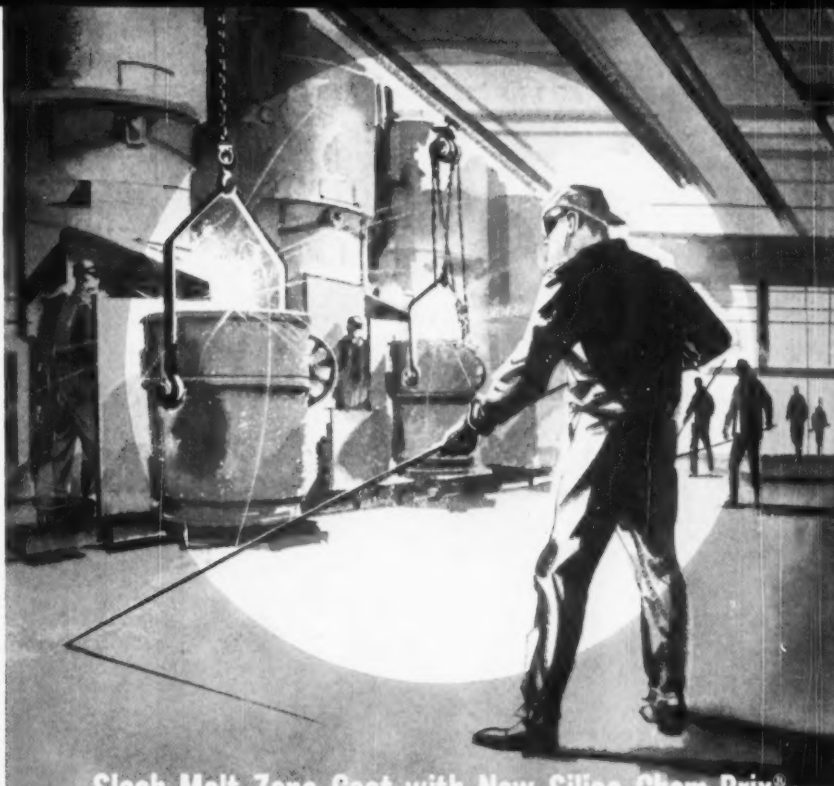
M. P. Getting, Jr., appointed to engineer core steel operations, Allis-Chalmers Pittsburgh Works.

R. J. Keller, named chief engineer, Welding Products Div., A. O. Smith Corp.

OBITUARIES

F. R. Peterson, 55, asst. to the president, R. G. LeTourneau, Inc., Longview, Tex.

D. E. Linn, 50, manager, sales service, Corn Products Sales Co.



Slash Melt Zone Cost with New Silica Chem-Brix®

Silica Chem-Brix

—a new, improved cupola block—actually cuts refractory cost per ton of iron by as much as $\frac{2}{3}$! You can melt up to 160 tons without repairing. Unusually high slag resistance allows cleaner running slag for faster run-off. Since no mortar is used, no pre-heating is necessary. And new Silica Chem-Brix is available for any size cupola. Read how your foundry can achieve greater refractory economy in the melt zone. Write for our new booklet.

Illinois Clay Products are produced at Goose Lake, only 55 miles from Chicago. Fast, dependable service can be made by truck or rail.

MAIN OFFICE: Joliet, Illinois; Barber Building

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MANUFACTURERS OF:

GOOSE LAKE Ground Fire Clay, Fire Clay Flour, Grundite
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L. B. Block, Concrete;

CHEM-BRIX, Silica, Carbon.



ILLINOIS CLAY PRODUCTS CO.



JALZINC



sets the pace
in zinc coated steel
with superior
drawing
and forming
properties



Jones & Laughlin
STEEL . . . a great name in steel

These five drawing operations in production of a muffler part illustrate outstanding adherence and formability of JALZINC.

JALZINC, Jones & Laughlin's high quality zinc coated steel, has a tight uniform coating that resists cracking and flaking during forming or drawing. The uniform luster surface finish improves product appearance after even the toughest fabrication operation.

Improved adherence and ductility of the zinc coating is due to the modern Sendzimir continuous galvanizing line. Only the JALZINC base metal controls your limits of bending, forming and drawing.

JALZINC is available in a wide range of gages and widths in both cut lengths and coils. It can be furnished in various coating weights depending on your end product needs.

Call your local J&L district office for details, or write to the Jones & Laughlin Steel Corporation, Dept. 403, 3 Gateway Center, Pittsburgh 30, Pennsylvania. For out of stock requirements, call your local steel warehouse or sheet metal distributor.

What Makes A Tool Trouble Man?

Downtime costs money. And the higher the production rate the more it costs.

One way to lower it is by choosing a good tool trouble man. But what is he like?

Here are a few pointers on what he should have in the way of experience and personality.

■ Meet Mr. Tool Trouble Man. He's a very important member of your production team.

As R. A. Thomson, formerly Manager, Lynch Road plant, Chrysler Corp., Detroit expressed it:

"A few years ago when a drill press broke down we either transferred the work or substituted another machine. Nowadays, with more and more integrated equipment, a breakdown in a single machine may mean an entire line isn't running. The machine that breaks down has to be brought back into operation quickly, using all the skills and all the equipment available in the plant.

Can Act Fast—"Today, you have to be prepared for equipment failures. You also have to have a tool trouble man who knows his business, who can act fast and get things done."

Just who is this tool trouble man who arrives on the double when a machine quits on the job? There are a lot of things about him you ought to know.

For example: He must know your equipment—all of your equipment. That's self evident. He can go by the rules—and he usually does.

But he can also improvise if he has to. And that may happen frequently, particularly if maintenance has been neglected.

Asks for Help — The well-grounded tool trouble man, Thomson points out, isn't afraid to give orders or to ask for help—from electricians, hydraulic engineers or planning or maintenance departments. He knows what to ask for, when to ask for it, and, equally important—how to ask for it.



TROUBLE SHOOTER: Chrysler's John Danko typifies tool trouble man.

The outstanding thing about a good tool trouble man is that he gets things done. He knows how to avoid operating trouble as well as he knows how to clear operating trouble. He gets people to work with him willingly—and without argument or delay. He inspires confidence by the way he tackles tough jobs under pressure.

The tool trouble man has indeed

become a key member of today's metalworking production team. The kind of man you select for the job—and the backing you give him—may mean more to you in keeping production costs down than any other single thing you do.

Keep Machines Running—Also, this basic fact shouldn't be overlooked. Thomson emphasizes: "The only thing that's really earning money for you is a machine that's running. Everything else—materials handling, the tool room, the engineering department are, in the final analysis, essential service. But they don't produce any income directly!"

Why has the tool trouble man suddenly become so important? Times have changed, of course. Most firms are today investing at least 10 times as much money in equipment as they did a few years ago. This equipment must be kept operating to pay off.

Specifically, then, what type of individual do you need to keep this valuable equipment operating without interruption? How much education does he need? Is a good mechanic qualified for the job because he's an outstanding mechanic?

Has Tool Room Training—The automobile industry has given a lot of thought to this problem. They've invested millions in new equipment which must be kept running. Both the cost of the equipment and the dependence of one machine on another in an integrated plant place a special burden on the tool trouble man. The Detroit manufacturers are doing something about their problem. Maybe you can do much

the same thing—with modifications of course.

What then is a good tool trouble man like? Usually he's not a college graduate. About 80 pct of the time he's a graduate of the tool room, however.

In most cases he's had training, either in a trade school or a technical high school. He may take special in-plant training. If he works for an auto company, he sometimes takes courses in Chrysler Engineering Institute or GM Institute or the Ford Trade School.

He's had at least 5 years training in the tool room but 10 is better. But it's not his skill as a tool maker that gives him the nod when the tool trouble job is open. What, then, should you look for?

Need "Born Mechanic"—The top qualifications of a tool trouble man

call for a "born mechanic" with an almost instinctive reaction regarding the source of a problem, the alternative solutions, and the initiative to set work in motion to achieve the quickest solution. He moves quickly, he acts positively. He's not afraid to make a decision.

These are the top characteristics of a good tool trouble man. Look for these first. Then go on from there to evaluate some of the secondary qualifications for the job.

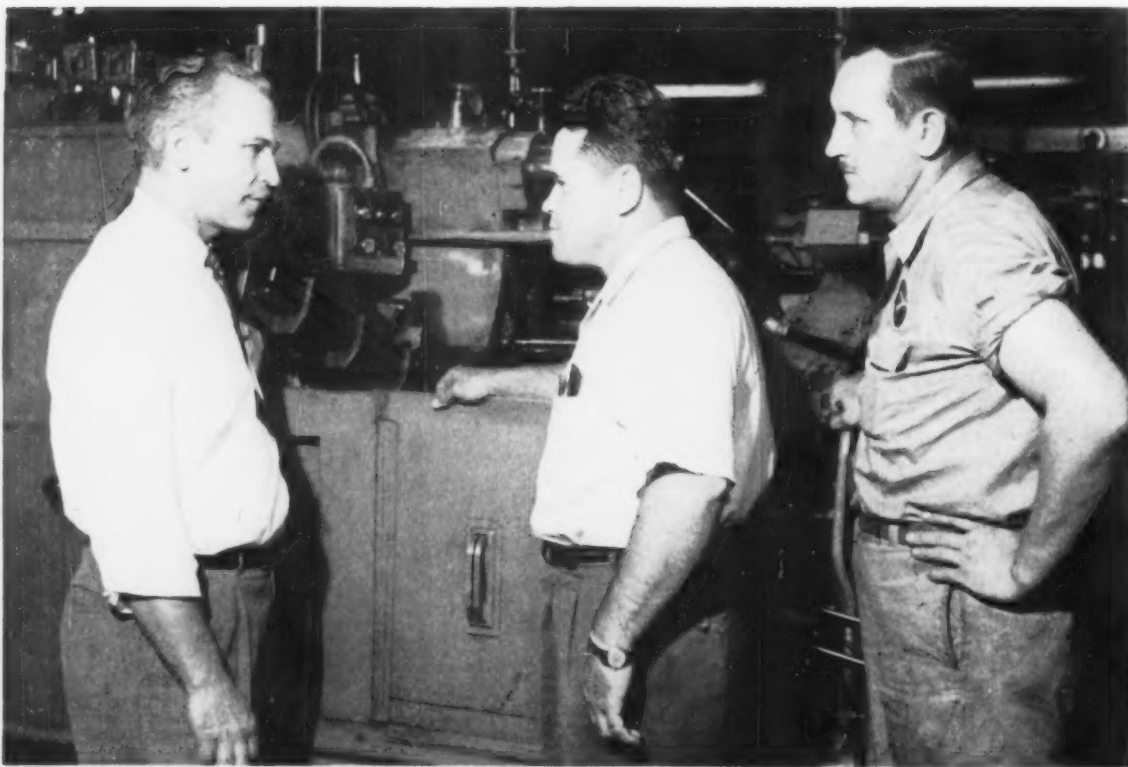
These qualities can be considered together. They include a broad knowledge of mechanics and equipment, a lively imagination, and ability to plan and organize.

Brings People Together — The ideal trouble man then is a "catalyst"—he brings people together. He suggests ways to get out of production difficulties. His responsi-

bility is often plant wide. If so, he delegates authority readily. And he decides whether it is better to break down responsibility by areas or by operations. In the auto industry, for example, many tool trouble men are responsible for an entire line involving a number of machines. They are responsible for a certain product rather than for a certain area.

This is the way many of the top notch trouble men are operating in the auto industry today. But let's suppose your problem is different. You have special problems, including personnel problems. Why not turn this job over to the foreman?

Will a Foreman Do?—It may work out satisfactorily. But you'll have to ask yourself this question: Can my foreman act decisively when a machine breaks down?



MEN IN ACTION: Here are pictures of tool trouble men and their fellow workers in action. They were taken through the courtesy of the Chrysler Corp. at the firm's Lynch Road, Detroit plant.

SPOT MEETING: Factory Service Coordinator James Unis, left, listens to tool trouble man John Danko, center, and toolmaker John Dudas tell how tooling change will improve quality of turned hobs for differential side gears at Chrysler Lynch Road plant.

Does he know enough about machines and tools? Or, was he chosen for his job primarily because he can handle people? The outstanding tool trouble man has to handle **both** machines **and** people. That makes a difference.

Auto plant executives indicate that, more and more, the foreman's responsibility is for personnel. At the same time, the need for technical talent is growing at an even faster rate. Hence, the increasing stature of the tool trouble man.

The good tool trouble man, then, has these qualifications:

1. He has an innate liking and "feel" for equipment.
2. He has demonstrated ability for leadership.
3. He has a pleasing personality—he can handle men satisfactorily.
4. He doesn't cry "wolf"—even

when he knows he's not responsible for a breakdown. He gets the job running—then, if he thinks it's necessary, he makes a complaint.

5. He's always ready to assume more responsibility.

6. He doesn't alibi.

7. He knows the function of the part. This gives him ability to size up variations in materials in their true perspective. He can also measure the importance—or lack of importance—of the tolerances on the job.

8. He should be willing to argue for opening up tolerances if it will save money **without** sacrificing quality or performance.

9. Primarily, he's a tool-maker. He must know tools. But he should also know a lot about other things, including mechanics, hydraulics, electronics, etc.

Test Abilities—If you want to shorten your search for a tool trouble man, call him the name he deserves, call him the "Spark Plug" of your organization's production department.

Of course, if you find all these abilities in one man, you may have more than just a tool trouble man. If he's young—and he should be—this may be just the spot to try him out for future executive talent. Can you think of a better way to test the ability of a man to lead, make decisions, organize and operate under fire?

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FAST ACTION: Tool trouble man Robert Jones, left, and toolmaker George Adams quickly iron out minor tooling difficulty on automatic assembly machine. Major qualities of a good tool trouble man call for fast action and a keen sense for what is wrong.



TOOL ROOM: Nearly 80 pct of tool trouble men are tool room graduates. Here toolmaker Joseph Burke, newly graduated from Chrysler's apprentice training program, works on "the bench" in Lynch Road tool-room. In background is tool grinder Wilfred Wolf.

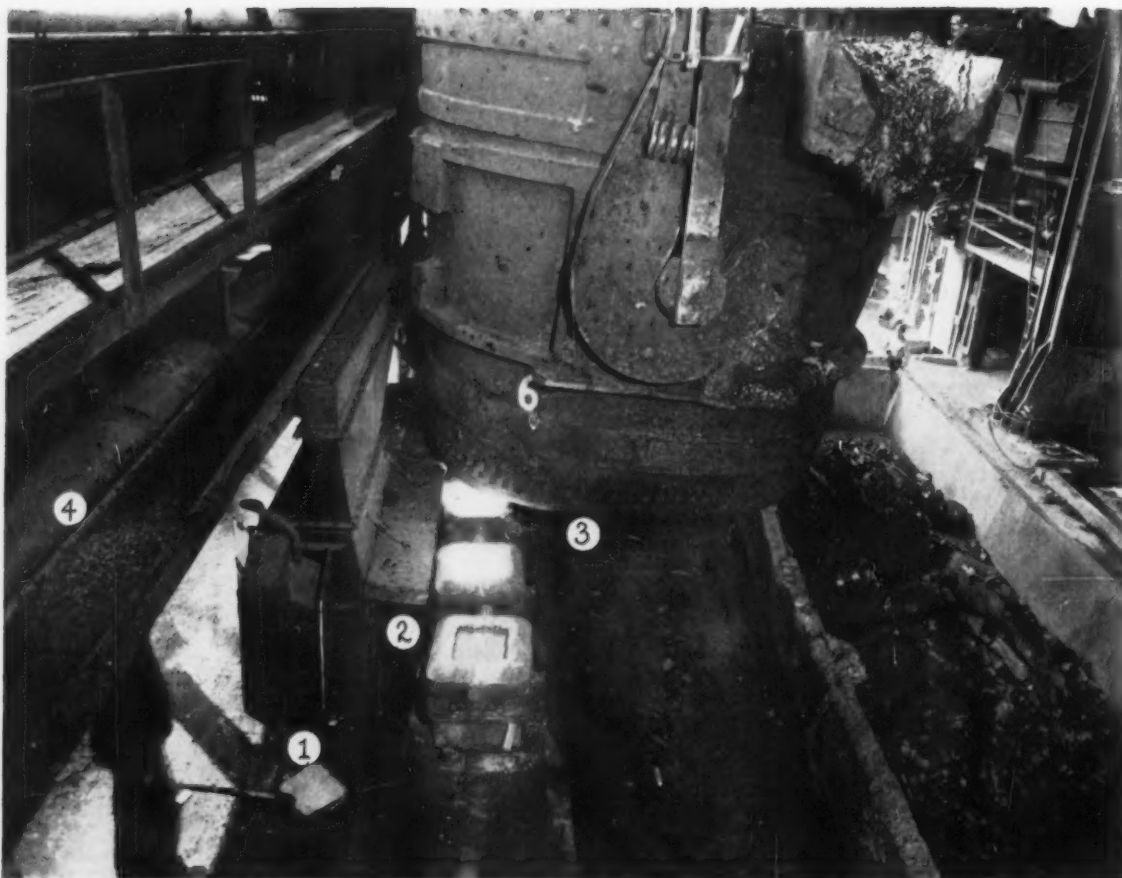


FIG. 1: Absence of smoke shows hood efficiency. Numbers (see text) refer to operating features.

Traveling Hood Exhausts Ingot

Where fumes occur in a pouring operation, why not have the exhaust hood travel with the ladle?

You can get 100-pct effective collection of fumes without having to set up separate hoods for each location.

It can do the job at low operating and maintenance expense.

There is better efficiency in the exhaust blower system with the single hood opening.

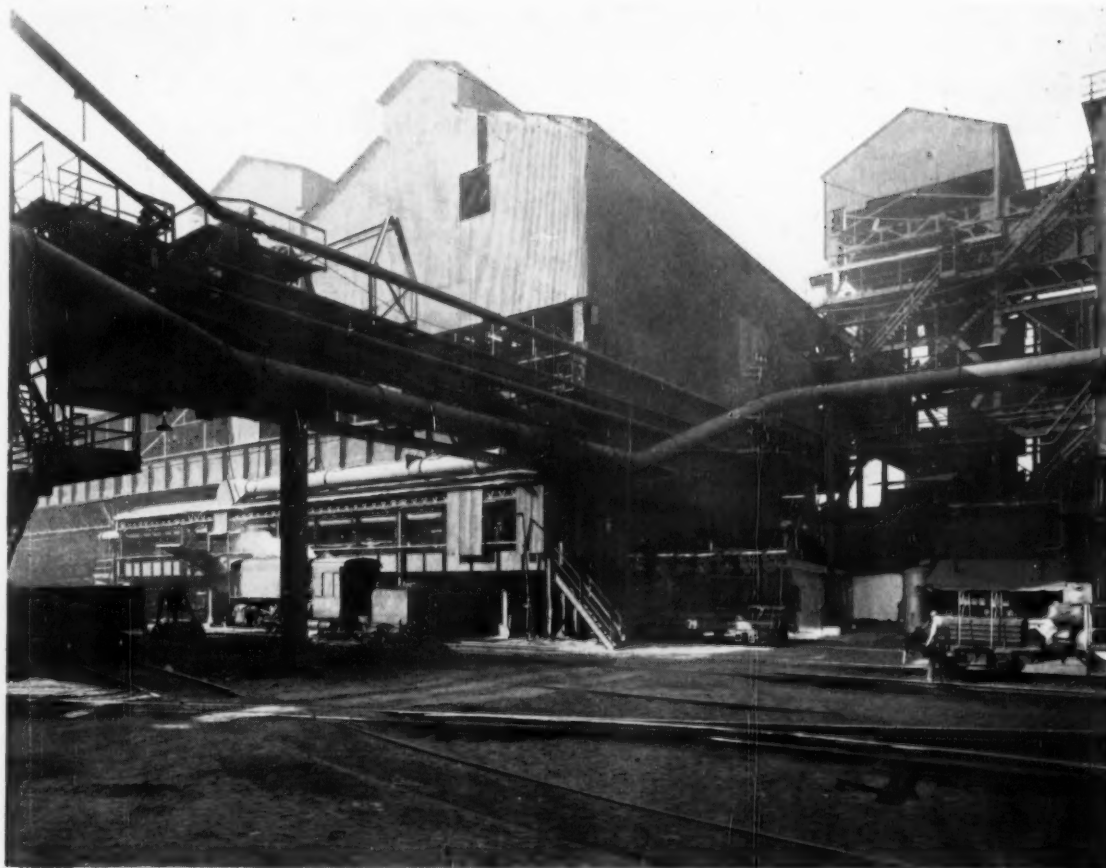
Lead oxide and iron oxide fumes are inherent to the process of making leaded steel. The mixing of cold lead with molten steel in the ingot mold results in clouds of dense smoke containing the toxic oxides.

A traveling hood car system proves to be an effective means of collecting the fumes. The Kirk & Blum Mfg. Co., Cincinnati, designed and installed the first installation of this type in the Aliquippa Works of Jones & Laughlin Steel Corp., Aliquippa, Pa.

Kirk & Blum first considered the

installation of individual hoods at each ingot mold, with duct connection through holes in the pouring platform floor. But setup time in installing the hoods prior to a leaded steel pour was cause for abandoning the idea. Instead the company decided on a hood car, traveling on tracks located on the pouring platform.

Moves With Ladle — The use of a moving hood is a departure from tradition in this industrial application. The motion of the car is linked to the ladle crane. This insures positive, automatic indexing



SWITCH VALVE: Exhaust system serves two departments with 33-in. diam switch valve, shown in center.

Fumes

of the exhaust air position for each pouring operation.

Fig. 1 shows the hood traveling on tracks on the pouring platform (1). The air intake orifice of the system (2), at the hood car, is located only inches from the point of smoke evolution. The orifice is long enough to cover four ingots.

The bottom of the pouring ladle (3) forms a deflecting surface to assist positive horizontal cross-flow at high velocity over the top of the molds.

Flexible Seal — The hood car travels the full length of the pour-

ing platform along a slotted exhaust manifold (4). Flexible sealing surfaces along the length of the slot automatically remain closed and air-tight under the relatively high vacuum produced by the exhaust fan.

The hood car extension opens the exhaust manifold slot to provide suction through the intake orifice for fume removal in the area of pouring.

There is no air loss through opening and closing the flexible seal surfaces. Simplicity of design and operation helps to reduce operating and maintenance expense.

From the 23-in. diam slotted header, the fumes flow into a 33 in. diam main. The traveling fume hood systems are in both the Besse-

mer and openhearth departments. Since only one department is pouring leaded steel at any one time, a 33-in. diam switch valve is used to connect exhaust flow from the active area to the filter section.

Filter Fumes — The fumes then enter a multibag filter containing a classifier section. In this large chamber, heavy particles are permitted to drop into the end hopper.

The air passes above the filter hoppers, vertically through the filter cloth, and horizontally into the fan inlet, which is encased in the filter enclosure. The fan discharge stack extends 50 ft above the ground as precaution against loss of fumes to the atmosphere in event of a ruptured filter surface or other emergency.

Two Tanks Do Work Of Ten In

By C. J. Riddle—Supervisor, Plant Engineering, Douglas Aircraft Co., Inc., El Segundo, Calif.

At first glance, it would appear that the standard method for surface treatment using successive tanks and efficient handling methods could hardly be improved.

But, a few ideas can raise output, speed up treatment, save space, and cut operating expense.

It's all done by using a principle common to a household appliance.

■ A new approach to the surface treatment of aluminum aircraft components processes several times the number of parts handled by former methods. By using two tanks in this Alodine-anodizing system, instead of the 10 or more used in conventional methods, it requires

only one-third of the floor space and was built for less than one-fourth of the cost.

Furthermore, instead of using over 4000 gal of solution in each tank of a 10-tank system, it takes less than 100 gal for each operation at the Torrance location of Douglas Aircraft Co.'s division, at El Segundo, Calif.

It all came about when accelerated schedules for Navy aircraft at the parent plant made it impossible to continue anodizing for the Torrance location. Big as Torrance is, it was unprepared to house the conventional 10-tank system.

Automatic Cycling—Plant Engineering came up with the answer, inspired by the operation of household automatic dishwashers. In the conventional method, an operator lowers the parts into each of the tanks successively with an overhead

crane. As the dwell time within each tank is relatively short, it takes the operator's full time to follow the parts through.

In the new method the parts, securely fastened to carrying fixtures, are lowered into the first of two tanks and the lid of the tank is closed.

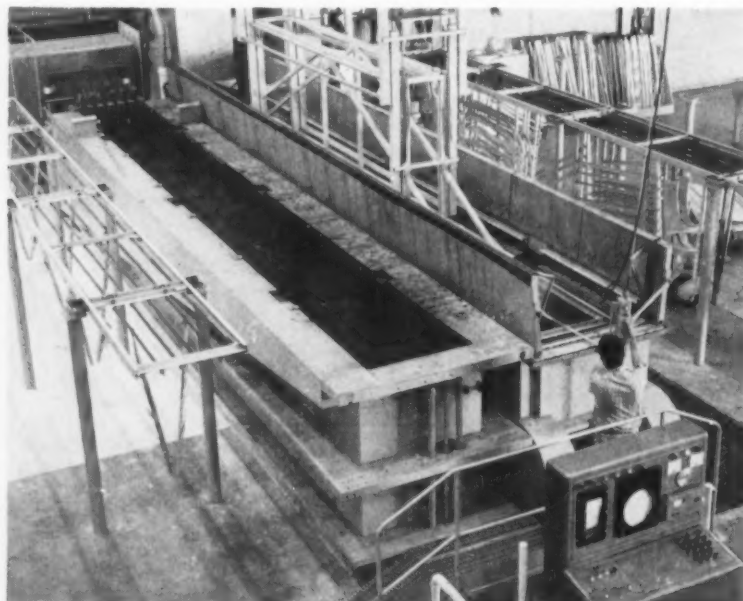
By pressing a button for anodic processing the automatic cycling starts. The steps previously done in the first three tanks of conventional systems follow one after the other without the lid being opened.

No Down-Time—At the completion of these steps the automatic cycling mechanism stops the operation. The batch to be anodized is removed and placed into the adjoining anodizing tank where standard anodizing follows.

While the anodizing progresses, a new load is introduced into the



SWIRLING SOLUTION: Time savings come in handling of solutions.



EFFICIENT PAIR: Operator lowers parts into cyclor tank. Anodizer tank on left operates in phase to utilize maximum efficiency of system. Console at lower right controls each step in process.

Surface Treatment

cycling tank for Alodine processing. The Alodine cycle is all done in the first tank and is completed before the anodized load is ready to proceed.

When the batch in the anodizing tank has completed its cycle, it is returned to the original cycling tank. The hot rinse, anodic seal and drying phases follow.

Operator Loads—The operator instead of hovering over the steaming tanks with a crane, is busy loading the carrying fixture with the next batch in line. As quickly as one batch is finished the next is ready and a new cycle begins. It means more efficiency in both manpower and machine-time.

The bottom of the cycling tank instead of having the expected flat base, is a series of scallops. At the deep part of each scallop and running across the tank are shafts on

which are keyed agitators of an impeller type.

The solutions for the various steps in the processing are dumped into the cycling tank to the top of the scallop line. The agitators run at 1750 rpm. The parts are showered so that every surface is in firm contact with the solution.

Stress On Speed—Each phase of this close-knit installation depends on the others to obtain speed. The solution lines into the tank, for instance, have six-inch valves. The tank fills to metered depth in 20 to 30 seconds. The fluids are dumped in the same short time.

All water-based solutions go through an instantaneous shell-and-tube water heater. This installation eliminates hot water storage tanks. Up to 120 gpm are heated to temperature with this system.

An alkaline solution is made

simply by introducing measured amounts of alkaline cleaner concentrate as the hot water enters the tank. The first turns of the agitators completely mix the solution.

There are about ten feet of electric panels for the installation, housing the timers and cyclers, in addition to the normal electrical components. Lights on the console indicate the process at work in the closed tank during the entire operation.

Germanium Rectifiers—For the anodic operation one of the first germanium rectifiers in general industry is in operation. It rates at 3000-amp, 50v for ac to dc conversion.

Compared with selenium used in older installations this rectifier setup requires but one-fourth the floor space. The installation increases the overall efficiency to 92 pct from the accepted 75-80 pct of older methods.

There is no aging of the stacks because the cells do not deteriorate. The anodizing operation is accomplished automatically through current and voltage regulators.

As in all anodizing, fumes are generated. From the anodizing operations the fumes are drawn off and routed through a fume washer.

Economy In Reuse—A spray of water de-contaminates the fume-laden air which is then run through steam coils and through the cycling tank, keeping it up to temperature. Eventually, the hot air is used to dry off the work in the final stage.

This use of waste material eliminates one complete set of conventional fans for drying. The de-contaminated air is exhausted, after all use is made of it, into the outside atmosphere. Its state is in full compliance with the requirements of the Los Angeles Air Pollution Control District.

Waste waters are dumped into neutralizing pits before being released into industrial sewers. The Alodine solution, however, is returned to a hold tank or reservoir after each batch for reuse.

Here's How Cycle Works

Step 1.	Hot water bath—to bring parts from ambient temperature to the temperature of the alkaline cleaner.
Step 2.	Hot alkaline cleaner—to clean parts.
Step 3.	Hot rinse—to remove alkaline cleaner.
Step 4.	Chemical bath—to apply surface treatment (Alodine, Iridite, etc.).
Step 4A.	Anodic electrolysis treatment—to anodize parts.
Step 5.	Hot rinse—to remove traces of chemicals.
Step 6.	Hot acid rinse—to promote paint adhesion (Alodine, Iridite treatment).
Step 6A.	Hot Anodic seal—for anodized parts.
Step 7.	Hot circulating dry-off.

One-Man Furnace Does Five Heat Treating Jobs

By H. W. Bassett—Vice President, Production, The W. E. Bassett Co., Derby, Conn.

The entire heat treating department of The W. E. Bassett Co. consists of just one versatile furnace and one operator.

Work done includes atmosphere annealing, straight hardening, case and through-carburizing, and carbo-nitriding.

The automatically controlled furnace is the key to the whole setup. Here's how it works.

One man plus a concealed quench, batch type atmosphere furnace takes care of all straight hardening, carbo-nitriding, carburizing and annealing requirements for The W. E. Bassett Co., Derby, Conn.

The firm makes a popular line of manicuring tools. Mounted on counter display boards, where they must more or less sell themselves, the tools require top-quality finish. Because many of the implements are sold with an unconditional lifetime guarantee, it's imperative that

cutting edges and component parts be of highest quality.

Just as important, the selling price of these products must be as low as possible because of a highly competitive consumer market.

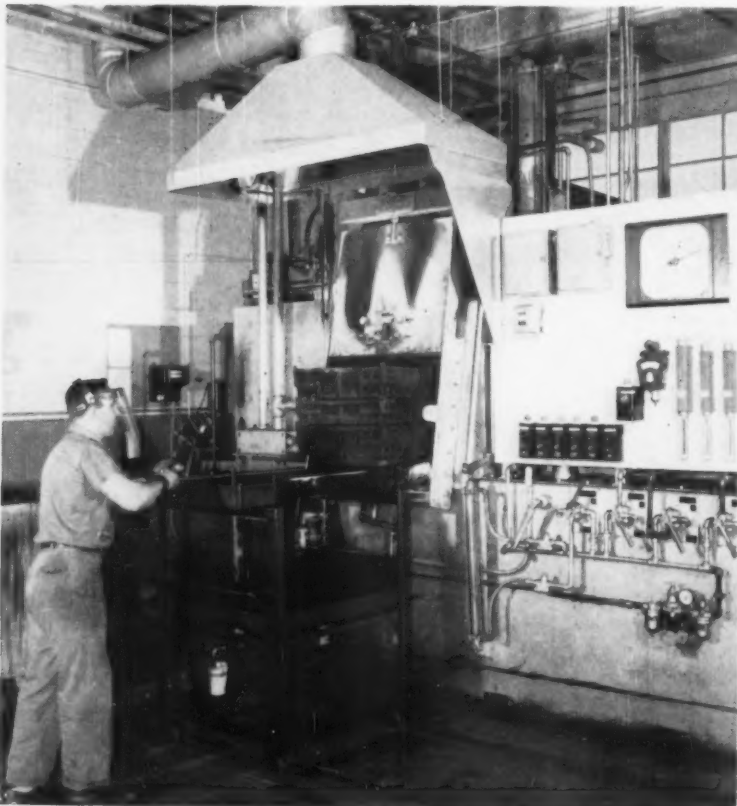
Furnace Is Key—Heated with educator type radiant tubes, an All-case furnace built by Surface Combustion Corp., Toledo, O., has been in use at the Bassett plant for two years. It has kept overall rejections at a minimum by improving quality of heat treating and surface finish.

Quality is easier to maintain because of better process control, and the furnace produces greater uniformity from piece to piece because of uniform heating and even distribution of atmosphere.

Components for these manicuring aids are stamped out of low, medium or high carbon steel, depending on the application. They then pass through several operations such as deburring, cleaning, and spot welding. Next, they are heat treated either by straight hardening, carburizing, carbo-nitriding or in some cases, atmosphere annealing.

Control All Factors—The All-case furnace consists of a vestibule, heating chamber and oil quench. Its usual operating temperature range is 1500 to 1650°F, although this can be increased to 1750°F. A completely enclosed, 900-gal oil quench tank is under the vestibule.

An elevator, which also serves as the vestibule floor, carries work into and out of the quench. During the quench, oil circulates through the work and recirculates through a cooler to maintain proper oil temperatures.



IN THEY GO: Operator pushes three loaded work trays into furnace vestibule. All controls and measuring devices are in easy reach.

Furnace loading and unloading is manual, but all of the heating operations are automatic. A control panel with signal lights, located near the vestibule door, is convenient to operate and also indicates the location of the charge. Temperature is controlled and recorded by a pyrometer mounted on an adjacent wall.

Spacious Heat Chamber — The furnace's heating section is 73 in. long and 67 in. wide. Walls are lined with insulating firebrick backed by insulating block. The furnace can accommodate work trays, fixtures, or boxes 24 in. wide, 36 in. long, and up to 18 in. high.

Roller rails carry loaded trays in and out of the furnace and vestibule. Both the charging door and the vestibule door operate pneumatically.

For some processes the furnace uses approximately 500 cfh of RX generator gas; at other times natural gas and ammonia are added to the prepared atmosphere. For straight hardening only, atmosphere is used as it comes from the RX generator. If work is cased or through-carburized, enriching natural gas is added.

When parts are carbo-nitrided, both natural gas and ammonia are added to the atmosphere gas. Atmosphere gas is piped into the furnace chamber behind a circulating fan for fast intermixing with hot gas in the furnace.

Oil in the quench tank is agitated by a propeller type unit with adjustable vanes. Forced flow of the oil through the cooler removes heat quickly, but there is an indicator to warn the operator if any overheating occurs. This makes the operation safer and also increases the useful life of the oil.

Provides For Annealing — Because some parts must be annealed before heat treating, there is a special cooling chamber at the side of the standard furnace. Work to be annealed is moved into the heating zone in the same manner as work to be hardened.



NEXT STEP: With the vestibule purged of air, work trays are pushed into the chamber that heats parts prior to the automatic oil quench.

Annealed loads are withdrawn from the heating chamber and moved sideways from the vestibule into the cooling chamber. This chamber is water jacketed and has a high capacity fan to circulate RX gas as a protective atmosphere.

An 800 lb load can be cooled from 1550°F to 600°F in just five minutes, but a longer cycle can be set up if required. In most cases, annealed work must be hardened. This calls for returning it to the vestibule and pushing it into the heating chamber to be reheated for quenching.

After hardening, a monorail hoist takes loaded work trays through a hot wash and two rinses. The work (still on its original fixtures or trays) then goes to the draw furnace. When tempering is complete, parts move to a special insulated cooling hood.

Good Housekeeping — The high ceiling in this department and the hooded atmosphere generator, heat treating furnace and draw furnace act to keep room temperature always at a comfortable level. Thus, the heat treating room does not have to be closed off from other plant operations.

The company assigns a high priority to shop cleanliness. It is standard practice to scrub all floors in the 30,000-sq ft plant once each week, including the heat treating department.

Walls in the heat treating department are painted white and are still clean after two years of using the multi-purpose furnace. The plant is located near a residential area, and considerable credit is given the present heat treating setup for the good community relations the company enjoys.



Asphyxia:

By J. B. Dunne—Manager,
Medical & Hospital Dept.,
Globe Industries, Inc., Dayton.

It can happen anytime, anywhere, and in countless ways.

A good preventive program is one way to reduce the toll—it helps to know where the dangers lie, to eliminate plant hazards and keep watch over employees with chronic ailments.

But when asphyxia strikes and the chips are really down, are you equipped to save a life?

■ Just about every industrial and commercial plant faces the possibility of death to its employees by asphyxia. Although this has been true for decades, the threat is now becoming greater because of the increased use of more complicated chemicals and raw materials; electrically-operated equipment is being used for more production work; and extended use of combustion equipment has added to the ever-present threat of carbon monoxide poisoning.

Although this sounds ominous, something can be done about it. But it will take a concerted effort and careful planning by both management and supervision. Setting up of a workable program for in-plant treatment of asphyxia, pulmonary or cardiac cases involves coordination of accident prevention training with use of efficient respiratory assistance equipment.

Although the industrial physician and the nurse in the dispensary are

IMMEDIATE AID: Train key people throughout the plant in manual artificial respiration. Seconds count when asphyxia strikes.



Are You Ready For A Crisis?

focal points for treatment of such cases, this type of program should be integrated with the overall functions of the safety engineer and industrial hygienist so that prevention and treatment go hand in hand.

Both Phases Are Important—All plants, large and small, can set up the same basic type of double-barreled program involving both prevention and treatment. It should be made the sole and prime responsibility of the industrial physician, nurse and safety engineer. A complete program will cut down on the number of cases that occur through personnel negligence. At the same time it reduces the seriousness of those cases impossible to avoid.

Preventive measures require the full cooperation of everyone in the plant. Organized labor will find it has a definite stake in the program, and should be brought into it at the outset.

All potentially hazardous materials, practices and equipment should be carefully analyzed and any dangers listed. A helpful guide is contained in Table I. It lists the more common types of hazards and should assist in laying out the investigative phases.

Most Can Be Remedied—Hazards outlined in the table fall into five main categories. With the exception of the first group (diseases), most of these are directly connected with use of materials, equipment or

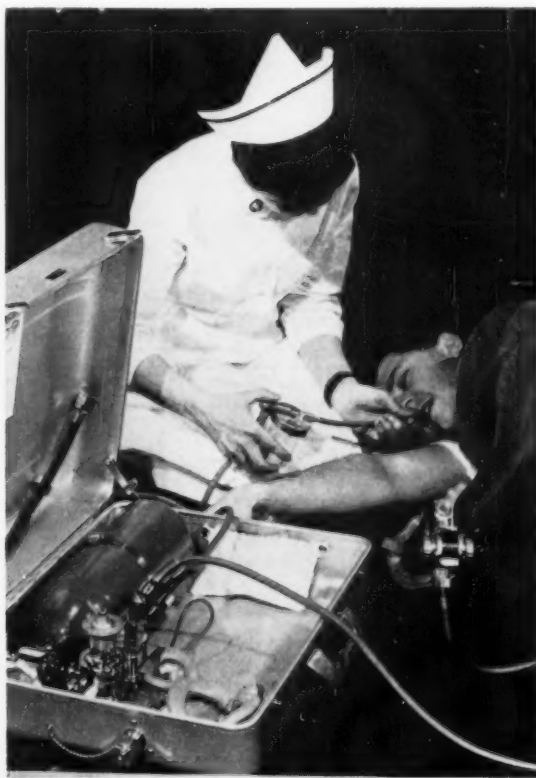
methods that might be modified or replaced to eliminate the hazard. This can often be done without affecting efficiency or product quality.

A search for hazards, carried out in a diplomatic and cooperative spirit, usually results in product and process improvements which otherwise wouldn't be uncovered. A recurring example is where manufacturers install makeup air systems for worker comfort in poorly ventilated areas. In addition to improving health and worker morale, they often find the resulting uniformity of air is very advantageous to raw materials and processing.

Referring again to the first category, diseases, the primary concerns are cardiac, circulatory and



SUPPLIES OXYGEN: A more reliable way to administer first-aid is with an automatic resuscitator. Portable Seeler unit in use here weighs only 30 lb, is easily rushed to scene of disaster.



FOR BLOCKAGE: Aspirator removes liquids and mucous obstructing the asphyxia victim's throat. Resuscitator is equipped with device that clicks an immediate warning whenever blockage occurs.

Training is a vital part of the program. Key people should be schooled in first- aid and use of life-saving equipment

pulmonary conditions, particularly in the executive and supervisory group. The best preventive measures in these cases are regularly scheduled, thorough physical examinations, plus close follow-up of cardiac and known hyper-tension sufferers. They should be encouraged to carry out a sensible routine as prescribed by their physicians in order to increase their chances for a longer useful life.

When an emergency of this type does occur, immediate and proper application of oxygen therapy or resuscitative equipment will often save a life.

Train For Emergencies—A vital phase of the preventive program is training. Make certain select personnel in each department know first aid, particularly the standard

technique of manual artificial respiration. The first few seconds in cases of asphyxia can mean the difference between life and death. Immediate artificial respiration helps keep the patient adequately ventilated until the portable resuscitator can be brought into use.

Training and refresher courses should be carried out religiously as part of the regular schedule of a hard-hitting safety education program directed to each and every employee.

Treatment of cases by manual artificial respiration is fairly reliable, but its effectiveness may be limited by tiring of the operator, lack of an oxygen-enriched air supply and the possibility of harm to an injured patient if it isn't properly and uniformly applied.

The automatic resuscitator eliminates these disadvantages. It provides a concentrated and controlled supply of oxygen; it can be used on injured and burned patients in inaccessible places; it can be used indefinitely; and it signals automatically when the throat is obstructed and respiration is not taking place.

Compact But Versatile—Some medical authorities advocate use of positive pressure on inhalation and negative pressure on exhalation when using the resuscitator. Others believe in using intermittent positive pressure on inhalation, allowing exhalation to take place by passive recoil. Modern resuscitators permit a choice of either method. The negative phase is used as directed by the doctor.

Modern resuscitators such as the Seeler type are also designed for maximum safety of the patient. Pressure relief valves are provided on the high pressure regulator, and pop-off valves are included on the facepiece to vent any excess posi-

Table I

Potential Hazards

Class	Type	Preventive Measures
Diseases	Cardiac conditions. Asthmatic and circulatory cases. Hypertension sufferers.	Regular physical checkups. Constant surveillance and encouragement to observe the doctor's suggested regimen. Employee instruction and job selection.
Equipment	Chemical, oil tanks. Vats and containers. Poorly ventilated rooms	Hoods over tanks, etc. Exhaust systems. Make-up air systems. Oxygen masks (self-contained breathing apparatus) where required for special areas and jobs. Employee training.
Electricity	Power and transmission lines. Powered equipment. Transformers. Portable power tools. Lightning.	Signs, painting and guard rails and fences. Continuous maintenance and visual inspection of tools. Proper grounding of tools. Isolation of areas. Employee training.
Asphyxiating gases	Carbon monoxide. Exothermic and endothermic atmospheres. Carbon dioxide. Volatile hydrocarbons.	Signs, painting guard rails and fences. Hoods and exhaust equipment. Continuous atmosphere sampling and checking with detecting equipment. Regular maintenance of all equipment, pipes, fittings and tanks. Oxygen masks (self-contained breathing apparatus) where required for special jobs and areas not rendered safe by other methods. Employee training.
Chemical irritants	Chlorine. Ammonia. Hydrochloric acid. Hydrogen sulphide. Lime. Sulphur. Hydrofluoric acid gas. Nitrous fumes. Bromine. Beryllium. Chloride of lime. Nitric acid. Phenols. Phosgene. Anticholinesterase agents. Benzol. Napthol. Sulphuric acid. Hydrocyanic acid.	

tive or negative pressure. They also have an inhalator arrangement which permits administering oxygen without pressure to the breathing patient. An aspirator for sucking out mucous and liquids is also part of the resuscitator kit, along with a means of diluting the oxygen.

By using aluminum alloy throughout its construction, the portable unit is extremely light and thus highly mobile.

How Many And Where—Since quick action is vital, accessibility becomes a problem, especially in the larger industrial plants. A few centrally located units may not be enough.

The number and location of portable units needed is determined first by the number of employees; second, by the size and type of building involved; and third, by the dispersal of office and production areas, if on the same floor. Location of extremely hazardous areas must also be taken into consideration and often given preference in locating the units.

Table II lists the number of portable units required by plants of different sizes to achieve maximum protection. It serves as a rule-of-thumb for determining the number of resuscitators that should be spotted throughout the plant, as well as in the dispensary and first-aid rooms.

The same key people who are trained in manual artificial respiration should also be taught the basic steps in operation of the portable resuscitator.

Step 1—Bring portable unit to the scene of the accident as soon as possible. Open case and remove resuscitator valve, hose and aspirator.

Step 2—Position patient properly, connect facepiece to resuscitator valve and turn it on. Automatic artificial respiration starts as soon as the mask is placed against the victim's face (it usually takes 10 seconds to complete these steps).

Step 3—If the resuscitator valve "clicks" rapidly, mask is removed and the aspirator is inserted to remove throat obstructions.

Table II Number of Portable Units Required

Number of Employees	Number of Units					
	Single Floors		Multilevel Buildings			
	25,000 sq ft or less	100,000 sq ft or less	Two Floors	Three Floors	Four Floors	Five Floors
25 or less	1	1	1	1	1	1
25 to 100	1	1	1	1	1	2
100 to 250	2	2	2	2	3	3
250 to 500	2	3	3	3	3	3
500 to 1000	3		3	4	4	5
1000 to 5000	4	5	5	6	7	8

Step 4—When patient's breathing becomes spontaneous, a turn of a knob converts the unit into an inhalator and oxygen flows to him without pressure.

Works Four Ways—Four distinct operations are built into units of the Seeler type: resuscitation, inhalation, aspiration and demand inhalation.

Resuscitation is used when breathing has stopped, as is often the case with electric shock, drowning, smoke inhalation, gas poisoning, concussion and many others. When using alternating positive-negative pressure the rhythm of the unit closely simulates that of normal breathing, and thus can provide required ventilation until the patient regains normal control of his pulmonary function.

Oxygen is delivered at a positive pressure of 16 mm of mercury and at a negative pressure of 8 mm of mercury. These pressures are maintained for only a second or two, and are controlled to simulate normal breathing.

After exposure to irritant gases, the patient requires intermittent positive pressure for resuscitation or assistance with breathing. By this method, oxygen is delivered at a pressure of 4 to 16 mm of mercury after a quick adjustment to eliminate the negative phase. This type of action assists in limiting pulmonary edema in these cases.

Inhalation requires only a simple valve adjustment to provide a steady flow of oxygen at 36 liters per minute to the patient who is breathing feebly or laboriously. On each breath he will inspire extra oxygen to enrich the blood supply.

Aspiration is required when the air passages are obstructed by fluids or mucous. This condition is detected by a rapid clicking of the valve. By quickly switching to the aspirator, the obstruction is readily removed. Victims of drowning or chemical inhalation will often have fluid in their throats.

Demand inhalation provides oxygen to the patient who is breathing normally or near normally only when he spontaneously inhales. This method for supplying additional oxygen is ideal for smoke inhalation cases and for heart attack and asthma patients.

Recent developments in the design of resuscitators have made them even more flexible and efficient by permitting simultaneous treatment of two patients for any combination of inhalation, resuscitation and aspiration requirements.

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Add Copper To Make Steel Bars More Machinable

Controlled amounts of copper in cold drawn steel bars boost machinability and improve wear and corrosion resistance.

Neither strength nor plastic properties of bar stock is diminished by copper additions.

Field tests offer proof of these benefits, and the alloy is readily available.

■ Here's news for those who specify, purchase or machine steel bar stock. It's the claim that machinability of C1144 cold drawn material is boosted approximately 10 pct when controlled amounts of copper are added to the alloy.

Checked out on actual production machining runs, this means (1) increased tool life ranging from 25 to 150 pct; (2) production rates 15 to 50 pct above those achieved with the non-copperized alloy.

What's more, better and faster machining isn't the whole story. The copper in these cold drawn bars is also said to improve their corrosion resistance, wear properties, overall strength and resistance to warping.

Patent Clinches It—These improvements were recently revealed by La Salle Steel Co., Chicago. The firm announced that a patent covering the addition of copper to improve machinability had been granted to E. S. Nachtman, its director of research.

The patent grant capped a long investigation to find a free machining agent which would supplement sulphur in the company's Stressproof brand of cold drawn bar stock. Stressproof bars, with or without copper, are nominally C1144 steel.

However, La Salle has always processed bars of this grade in a particular manner to develop those properties it feels are most wanted

by its customers. Severe cold deformation, the use of specially-shaped drawing ties and higher-than-usual tempering temperatures have been, and still are, key factors in the production of these branded bars.

Offer Added Value—Now, however, the firm is prepared to produce copper-bearing Stressproof bars for those customers who want even better physical and mechanical properties. Presumably, the basic C1144 alloy isn't changed, and neither is the traditional cold drawing and tempering cycle. But the copper does put some frosting on the free-machining cake.

For proof of this added value, the company cites laboratory and field tests that show approximately a 10 pct increase in machinability compared to the regular Stressproof brand. For emphasis, it says the copper-containing bars will machine faster than any other steel of similar strength and carbon content.

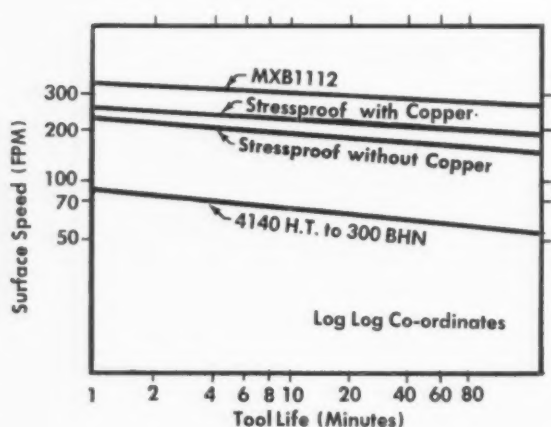


FIG. 1: Standard tool life tests show that copper-bearing bar stock approaches MXB1112 alloy for economical machining operations.

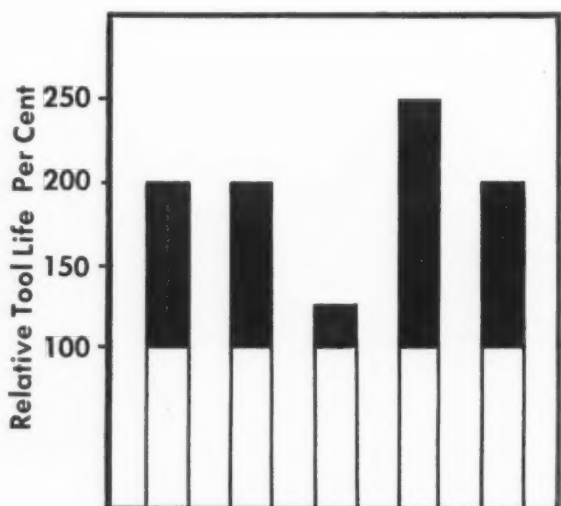


FIG. 2: Shop tests of tool life with copperized bars (dark areas) range 25 to 150 pct over life on regular bar stock (light areas).

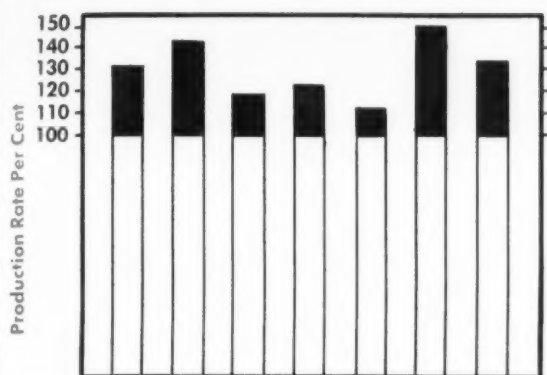


FIG. 3: Customers' production rates with copper-bearing bars (light areas) are 15 to 50 pct over those obtained with regular C1144.

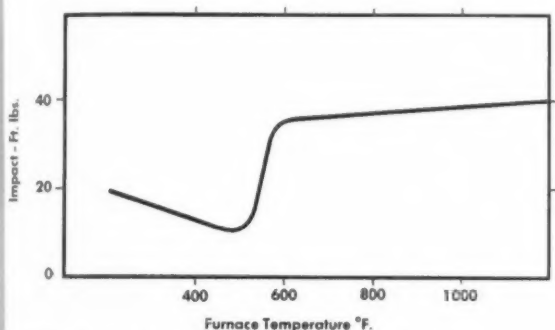


FIG. 5: Average of room temperature impact tests on C1144 cold drawn with 24 pct draft and relieved at temperatures shown.

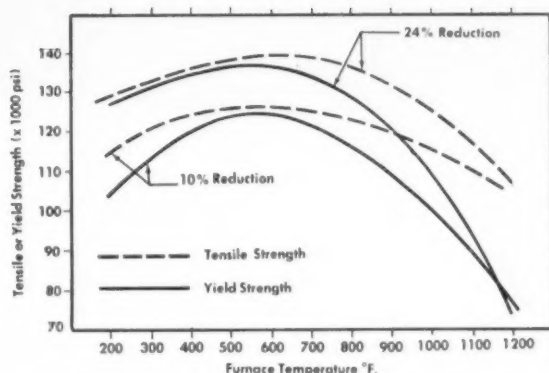


FIG. 4: Heavy reductions in cross section during cold-drawing cycle yield greater strength for a given tempering temperature.

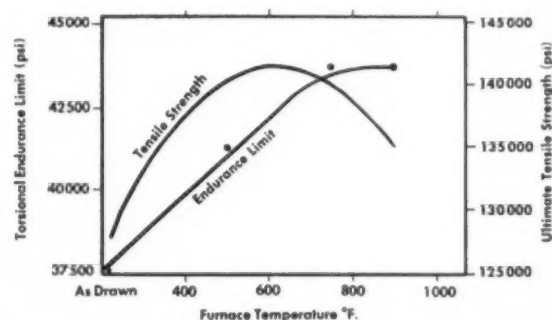


FIG. 6: Up to a point, endurance limit of cold drawn C1144 bar stock rises almost in a line with higher tempering temperatures.

Fig. 1 shows evidence of better machinability as determined by standard tool-life tests. Free machining steel of the MXB1112 grade was used as the standard and given the arbitrary tool life rating of 100 pct. Other steels were related to this standard at a time of 60 minutes, commonly accepted as equivalent to an 8 hour tool life.

Approach the Best—These curves show that tool life with both the copper and non-copper bearing C1144 is better than that obtainable with heat treated 4140. Moreover, the company points out that its cold drawn bars containing copper approach the machinability of the MXB1112 standard.

Fig. 2 shows the results of field tests run in customer's plants to measure actual tool life improve-

ments when using the copper bearing bar stock. These gains ranged from 25 to 150 pct.

The more machinable, copper-bearing Stressproof bars also boosted overall production rates in a series of field tests, as shown in Fig. 3. Gains ranged from 15 to 50 pct above the rates obtainable with bars free of the copper addition.

Tops for Wear—La Salle engineers also put specimens of the new copper-bearing steel through a variety of wear tests. In all cases, these proved to have superior wear resistance compared to steels of equivalent hardness and strength.

Because copper is soluble in ferrite, it is reported to increase the strength of C1144 in the as-drawn condition. For its new copper-bearing bars, the firm continues to

guarantee a minimum yield strength of 100,000 psi in sizes through 2 in. diam, and 90,000 psi in sizes over 2 in. and through 3½ in.

Other mechanical properties are not guaranteed, but the user is assured they are improved as a result of the copper addition.

Resists Corrosion—Better corrosion resistance, particularly in marine atmospheres, is another benefit gained by adding copper to Stressproof bar stock. In certain environments where the presence of sulphur appears to lower corrosion resistance, the copper seems to minimize this effect.

Furthermore, the presence of phosphorus with copper seems to extend copper's effect in improving corrosion resistance. However, La Salle says its copper-bearing cold

Copper-bearing bars have little or no tendency to warp.

drawn bars cannot be considered as substitutes for stainless steel where severe corrosion conditions exist.

Stressproof bars containing controlled amounts of copper are also said to be virtually free of any tendency to warp during or after machining operations. La Salle says this is because its drawing process takes advantage of a basic metallurgical fact: "the more a bar is reduced in cross section the stronger it becomes."

Heat Treating Helps—Of course this means that plastic properties are reduced accordingly. However, heat treating the bar in an appropriate temperature range will restore plastic properties to useful levels and combine them with satisfactory strength for many engineering purposes.

Fig. 4 shows the effect of light (10 pct) and heavy (24 pct) reductions in cross sectional area on the tensile and yield strengths of C1144 treated at various temperatures.

It's obvious from these curves that severe reductions produce strengths (for any given temperature) considerably above those obtained when light drafting practice is used. This means that for a given material, at a given strength, the furnace temperature will be higher when heavier reductions are used.

Steels Often Brittle—This is important in view of the temper-brittleness phenomenon that often appears in cold drawn, furnace treated materials. Fig. 5 shows this effect in graphic form, wherein there is an abrupt transition from very low impact values to higher values between 500° and 600°F of tempering temperature.

Actually, if cold drawn bars are tempered at about 500°F, they become more brittle than they were in the original cold drawn condition. Plastic properties of the material

can only be improved by tempering well above 600°F.

The temperature used in producing Stressproof bars is usually around 900°F. Abnormally heavy reductions in the cold drawing process make it possible to go this high in furnace temperature, which gives the steel the optimum properties considered most desirable for the user.

Aids Endurance—Also, La Salle engineers claim that these higher temperatures improve the fatigue resistance of the branded, cold drawn bars. For evidence, Fig. 6 plots laboratory data on torsional fatigue tests. It shows the influence of strain-relieving temperatures on cold-drawn specimens.

In the as-drawn condition, the torsional fatigue limit is at its lowest point. However, this endurance increases almost linearly with the strain-relieving temperature in the range studied. Inasmuch as the curve bends over at the top of the range shown, further increases in temperature will undoubtedly cause the endurance limit to drop still more.

Thus, as La Salle metallurgists point out, temperatures well above the embrittling level must be used on Stressproof bars to minimize the effect of residual stresses. And by going up to the firm's usual 900°F tempering temperature, stresses are not only reduced proportionately to a low level; they are uniformly distributed, as well.

Low Stresses, Anyway—Actually, there is a minimum of cold-work stress in the bar stock to begin with. This is attributed to the patented "T" die which La Salle uses in its drawing practice.

The level of internal stresses resulting from the use of these dies is said to be very low. Subsequent furnace treatment merely serves to further homogenize and reduce the minor stresses that are present.

Thus any Stressproof bar is a product which claims: (1) high strength due to heavy cold reduction; (2) inherently low internal stress due to the unique "T"-die

drawing method; (3) desirable plastic properties due to the high temperature at which it is strain relieved.

Copper Adds More—Furthermore, with controlled amounts of copper added to the basic alloy, all of these desirable characteristics are said to be enhanced still further.

Copper in the desired concentration is added by a normal procedure. It requires no special techniques, achieves uniform distribution throughout the melt and assures practically 100 pct recovery.

Especially with these copper-bearing, cold drawn products, La Salle Steel hopes to eliminate many troubles that have long plagued users of bar stock.

Choice Was Limited—Heretofore, parts requiring high strength have had to be produced by one of two methods. As the first alternative, they could be machined from steels heat treated in the bar form because of their analysis or structure. But such steels machine slowly and cut production rates drastically.

As a second alternative, parts could be made from free machining steels and subsequently heat treated. This speeded machining rates, but boosted production costs because of the furnace treating, cleaning, straightening and grinding needed.

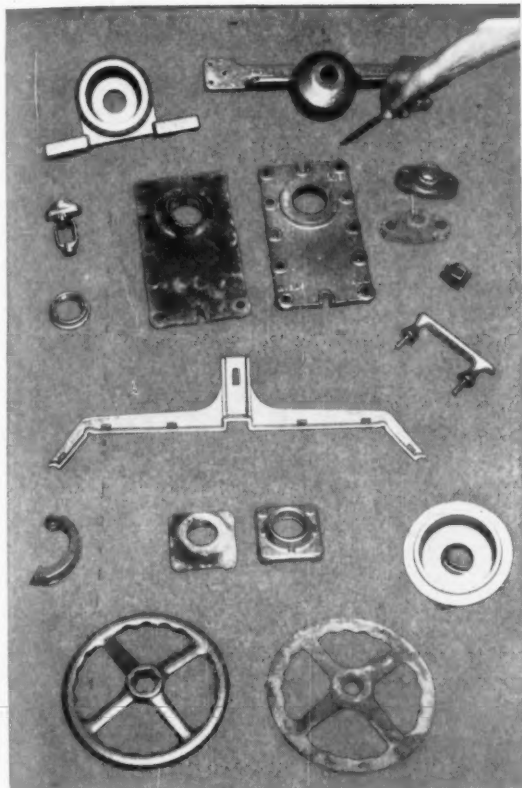
The introduction of non-copper-bearing Stressproof bars 18 years ago is said to have helped solve many of these problems. The bars had built-in qualities that could formerly be obtained only by the use of several different steels or production methods; they combined properties of strength, wear resistance, minimum warpage and machinability usually found only singly or doubly in other bar forms.

Now, La Salle says that additions of controlled copper give cold drawn bar users the added value of improved machinability, resistance to corrosion and wearability.

These factors should add up to more consistent performance and extended service life, the company feels.

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New Catalogues And Bulletins

Money-saving products and services are described in the literature briefed here. For your copy just circle the number on the free postcard, p. 121.

Machining Steels

More than 20 different fast-machining steels are analyzed in a selection guide. It reports on carbon, alloy and stainless steels de-

signed for rapid output work. Fast-machining leaded steels are also featured. (Joseph T. Ryerson & Son, Inc.)

For free copy circle No. 1 on postcard, p. 121

Hardening Metals

Two new case history reports review furnace-hardening of metals. One deals with leaded steel shafts carburized, then hardened; the other covers beryllium copper parts precipitation hardened. In the first,

both carburizing and hardening is done in the same furnace. (Ipsen Industries, Inc.)

For free copy circle No. 2 on postcard, p. 121

Surface Grinders

Precision surface grinders are illustrated in a 6-page catalog. It gives specifications, weights and features of a new line of machines. (Abrasive Machine Tool Co.)

For free copy circle No. 3 on postcard, p. 121

Shock Tester

A dynamic tester accurately simulates the shocks experienced by equipment in actual use. It's said to be capable of producing thrusts up to 12,000 lb instantaneously and with precision wave-form control. It's built of modular components. (Consolidated Electrodynamics Corp.)

For free copy circle No. 4 on postcard, p. 121

Power Panel

A four-page bulletin describes a panelboard designed to distribute power from main feeders to power loads, to other distribution panelboards and lighting panelboards. (General Electric Co.)

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Pushbutton Switches

A data sheet gives full information on magnetically-held, lighted pushbutton switches. They combine the features of multi-circuit switching, a self-contained indicating light and a 28-v dc holding solenoid into one compact unit. (Micro Switch Div., Minneapolis-Honeywell Regulator Co.)

For free copy circle No. 6 on postcard, p. 121

Induction Heaters

Specifications for 15, 30 and 40 kw units are grouped in a single bulletin. It also describes basic components and optional features. There's a guide to induction brazing and soldering, a frequency selector chart, a static hardening

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curve and other information, as well. (Magnethermic Corp.)

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Visible Records

Here's a mine of information—logically arranged—on the entire subject of instant, visible record keeping. (Remington Rand Div., Sperry Corp.)

For free copy circle No. 8 on postcard, p. 121

Free Cutting Steel

Here's data on a free-cutting, carbon-manganese, case hardening steel said to have an excellent balance in its mechanical properties. (Joseph T. Ryerson & Son, Inc.)

For free copy circle No. 9 on postcard, p. 121

Shell Molding

A new booklet presents a photo story of shell molded castings. It also examines quality control, design considerations, materials and typical castings made by this technique. (Westinghouse Electric Corp.)

For free copy circle No. 10 on postcard, p. 121

Vibratory Feeders

Equipment is offered which enables manufacturers to develop their own feeders. Blank units are available to established makers of feeders which they can use in specific new developments. Items described in a new catalog include base power units, blank cast bowls and fabricated supply hoppers. (Vibratory Feeder Co. Div., Automation Devices, Inc.)

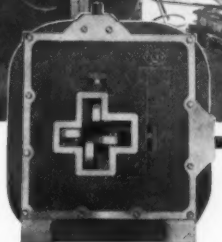
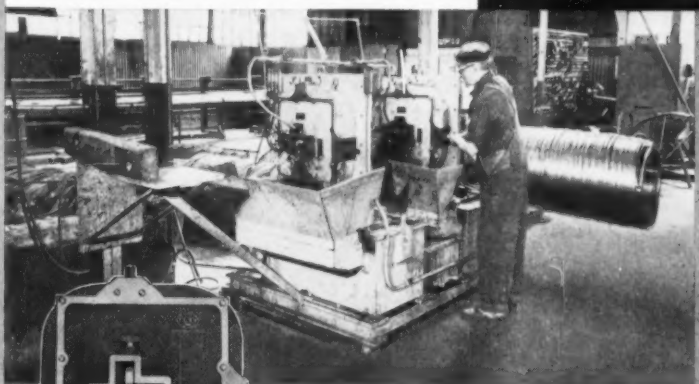
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switching from one instrument to another; or switching one instrument to many different measuring points. Diagrams illustrate individual types. (Thermo Electrical Co., Inc.)

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Vinyl Coatings

Several bulletins list features of tough vinyl coatings that protect surfaces from virtually any type of corrosive atmosphere. (Amercoat Corp.)

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Grinding Overlays

Recommended wheels for finish grinding overlays of hard facing alloys are tabulated on a data sheet. Part numbers are listed for grinding wheels made by 11 different manufacturers. (Wall Colmonoy Corp.)

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Electrical Steel

Detailed information on an iron-nickel steel, including typical physical, mechanical and magnetic properties, is provided in a 20-page data "sheet." (Allegheny Ludlum Steel Corp.)

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Stainless Castings

Types and applications of the stainless sand castings produced by this firm are described in a brochure which also lists specifications of some common stainless steel alloys. (Alloy Steel Casting Co.)

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Gaseous Fluxing

Use and advantages of graphite components in gas fluxing of aluminum melts are discussed in a booklet which describes the gas fluxing process. (Speer Carbon Co.)

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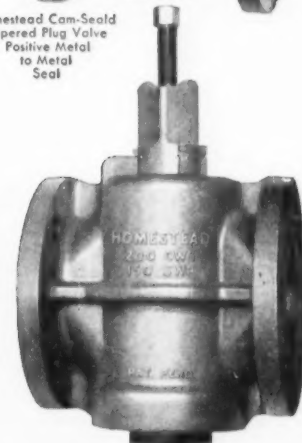
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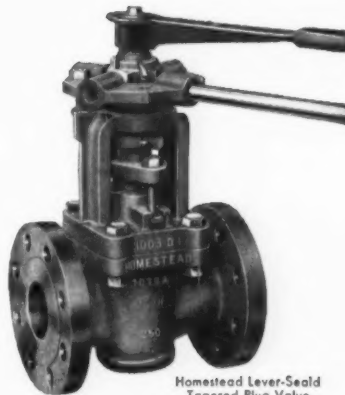
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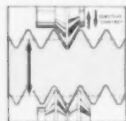
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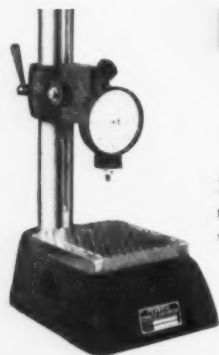
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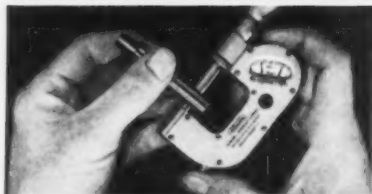


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Data Processing

A series of illustrated brochures detail industrial and engineering applications of electronic data processing. Solutions to computational problems in traverse closure, pipeline design, cut and fill, bridge design, and mass spectrometer data reduction are among those documented. (Electro Data Div., Burroughs Corp.)

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Material Separation

If you beneficiate coal, ore or rock products, this booklet discusses the basic principles of heavy media separation and its application through factory-built plants. It contains data and a chart on the density relations for magnetic suspension media. (Southwestern Engineering Co.)

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Hard Surfacing

Metal wear due to abrasion, corrosion, friction, heat and impact creates a need for hard-surface overlays on base materials. Here's a booklet full of case histories illustrating overlay applications. (Eutectic Welding Alloys Corp.)

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Aluminum Weld Tests

Here's a booklet for those who must either test aluminum fusion welds or approve the welding equipment used for such work. It covers testing methods, the making of test welds, and also lists defects

that occur in the principal types of welds. (The Aluminum Development Assn.)

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Barrel Pump

A short bulletin describes the advantages of a controlled volume barrel pump used for the combined pumping and metering of toxic or corrosive chemicals from barrels or drums. (Milton Roy Co.)

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Roller Conveyors

Various types of rollers and frames are blueprinted for those who specify gravity and live roller conveying systems. (The Alvey-Ferguson Co.)

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Process Control

Dynamic control systems, a major development in the process control field, are described in a new bulletin. These systems program and regulate one or a number of transient variables in a process with great accuracy. (CDC Control Services, Inc.)

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electrical conductors. Adjacent tables carry data on coverings, messengers, sizes and strandings. British, as well as U. S. standard tables are included. (Kaiser Aluminum & Chemical Sales, Inc.)

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Surface Grinders

A fold-out booklet is profusely illustrated to show the "Operator Engineered" features of a new line of precision surface grinders. Ample text and caption material explain every detail, including specifications and optional equipment. (Abrasive Machine Tool Co.)

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Die Sets

A catalog contains information on sizes, dimensions, prices and other ordering data for a full line of die sets in both the standard two pin series and the rear two pin rectangular series. (Die Supply Div., E. W. Bliss Co.)

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Fluidized Coatings

Fluidized plastic coatings offer one way to combat corrosion. A reprint of a feature article covers such topics as the mechanism of fluidization, coatings available, cost factors and applications. (American Agile Corp.)

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Germanium Rectifiers

A new line of low-priced, self-contained germanium rectifiers is designed for large and small production plants; for job plating; and for other low voltage (2 to 12 v) dc applications. (Hanson-Van Winkle-Munning Co.)

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Inspection Equipment

Lightweight inspection equipment made of aluminum and magnesium is said to permit faster

and easier tooling for styling, model and pattern shops; for production machining setups; and for precision welding operations. (The Challenge Machinery Co.)

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Tubing Tolerances

A pocket-size reference booklet contains up-to-date information on commercial tolerances for welded steel tubing. Data is designed for engineers, designers and purchasing agents. (Revere Copper & Brass, Inc.)

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Surface Roughness

Recently published, an American Standard booklet on surface roughness, waviness and lay should be helpful to manufacturers interested in reducing machining costs and controlling surface finish. (Brush Electronics Co.)

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Custom-Made Parts

Facilities for making component parts or entire products to your blueprints and specifications are described and illustrated in this brochure. (The Plume & Attwood Mfg. Co.)

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Wall Chart

A two-color wall chart of decimal equivalents has large, easy-to-read numerals. It's tinned top and bottom and has an eyelet for hanging. The surface is plastic coated for long life. (Peninsular Steel Co.)

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Pinhole Detector

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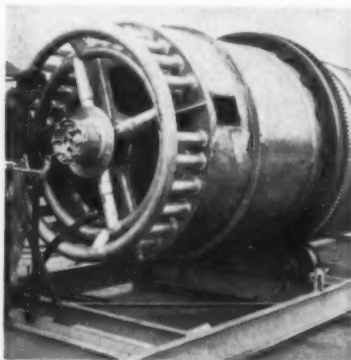
Ltd. for installation in the low pressure polyethylene plant of the Polymer Chemicals Div., W. R. Grace & Co., Baton Rouge, La.

Features Aluminum—With the exception of tires, driving gears, trunnion roll assemblies and bed frame, the dryers are constructed entirely of aluminum with stainless steel pads separating the dissimilar metals to prevent electrolytic corrosion. Standard Steel designed the all-welded construction of the shell, hoods, steam tube system and manifolding to provide greater

strength and longer equipment life—allowing for the high co-efficient of expansion of aluminum.

Special aluminum tubes to conform to Standard Steel's requirements were extruded by Kaiser Aluminum & Chemical Corp.

Double seals for all connections between the shell and the hoods maintain a tight seal inside the dryer. Steam is supplied to the



Stainless steel pads separate dissimilar metals in dryer.

dryers through a floating-type rotary joint made entirely of stainless steel and aluminum parts designed specifically for this application by Standard Steel engineers.

Oxygen-free—The nature of the polymer resin that will be processed in these dryers is such that

Want More Data?

You may secure additional information on any item briefed in this section by using the reply card on page 121. Just indicate the page on which it appears. Be sure to note exactly the information wanted.

DESIGNED FOR DESIGNERS

Designers are often stumped when looking for new methods and new materials to dress up products. The inclusion of Hendrick perforated metal in product fabrication not only helps increase a product's overall attractiveness but also adds to its saleability as well! Perforated metal, masonite, rubber, plastic, and insulated board can be used in the design of: automobiles, furniture, buildings, appliances, notions, novelties, machines, equipment, and other products. Hendrick has hundreds of attractive designs to choose from. In Commercially rolled metals and gauges to meet exact needs.



H E N D R I C K
MANUFACTURING COMPANY

37 Dundaff Street, Carbondale, Pa.

Perforated Metal • Perforated Metal Screens • Wedge-Slot Screens • Hendrick Wedge Wire Screens • Architectural Grilles • Mitco Open Steel Flooring—Shur-Site Treads • Armorgrids • Hydro Dehazers • Petrochemical Column Internals

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the process must take place in an oxygen-free atmosphere. The equipment must be constructed of materials which will not contaminate the product.

Standard Steel's creative engineering and modern welding techniques on these aluminum steam tube dryers have allowed the use of aluminum construction, significantly cutting equipment costs.

Vacuum Arc Furnace Mass-melts Alloys

Now in use for production melting molybdenum and molybdenum alloys is a new 16-in. capacity vacuum arc furnace. The melting unit casts an extremely pure ingot, its user reports. This is because it removes gaseous impurities, reduces segregation, and produces a good grain structure.

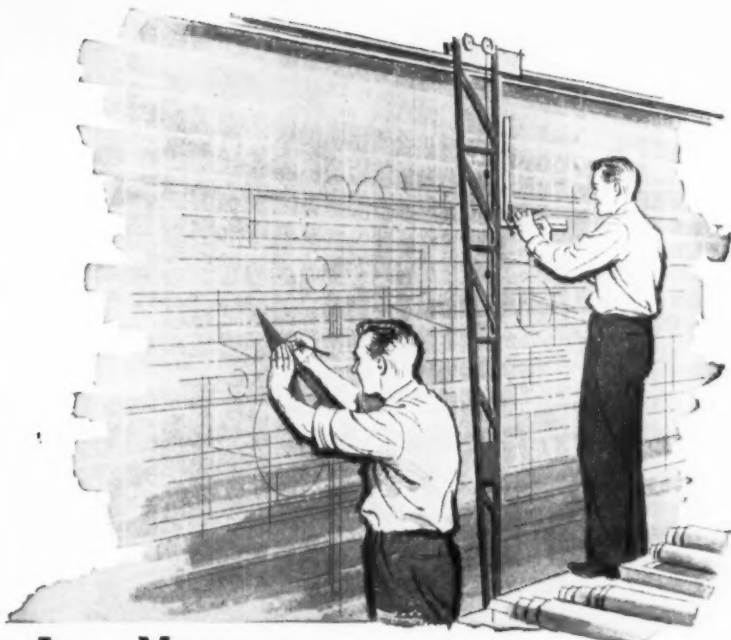
Employed by the Universal Cyclops Steel Corp. at its Bridgeville, Pa., plant, the melting unit gets its power from ten selenium rectifiers producing 15,400 amp.

What It Is—Geared for high production and quick, easy installation, the setup's key feature is low down-



Vacuum furnace gives pure ingot, good grain structure.

time. An Electrode, inside a housing, is lowered into the water-cooled crucible as another awaits its turn. To load, the electrode housing is swung over the electrode, and the electrode is drawn up into the housing. Then, it's swung back



Are You an Engineer's Engineer?

Then you will enjoy meeting the men at Pioneer. Here are gathered together the most versatile and competent staffs of product development and design engineers you can imagine.

They are real engineers' engineers. There is nothing in the world to them like getting their teeth into a product design and development, or improvement project.

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with development, with styling for today or tomorrow, with engineering analysis, production methods and tools, on prototype building and testing, performance analysis and specifications.

Industry has called on them on over 264,000 jobs in the past 25 years. Working with engineering staffs like yours, they are trained to assemble ideas from their experiences in dozens of fields and apply them to the development of a better, more economical, more saleable, **MORE PROFITABLE** product in a still different field... yours!

You can write your own specs as to what you want them to do for you, and how. They'll be part of your team. They are a real engineer's engineers...

P. S.—Pioneer's Chief Engineer has some material he'll be glad to send you, giving more details on our services. Ask him for Bulletin PE-60

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your casting specs**

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ALLOYED PRINCIPALLY TO MEET CORROSIVE CONDITIONS

CHARACTERISTICS	UNIT OF MEASURE	CA 10	CA 16	CA 18	CC 16	CA 8	CA 18	CA 16	CA 18
Weight	lb./cu. in.	0.275	0.275	0.272	0.272	0.280	0.280	0.280	0.280
Strength	lb./sq. in.	3,750	3,750	3,750	3,750	3,750	3,750	3,750	3,750
Hardness	Rockwell C	45	45	45	45	45	45	45	45
Temperature	°F.	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

ALLOYED PRINCIPALLY TO MEET HIGH TEMPERATURES

CHARACTERISTICS	UNIT OF MEASURE	CA 10	CA 16	CA 18	CC 16	CA 8	CA 18	CA 16	CA 18
Weight	lb./cu. in.	0.275	0.275	0.272	0.272	0.280	0.280	0.280	0.280
Strength	lb./sq. in.	3,750	3,750	3,750	3,750	3,750	3,750	3,750	3,750
Hardness	Rockwell C	45	45	45	45	45	45	45	45
Temperature	°F.	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

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Hardness	Rockwell C	45	45	45	45	45	45	45	45
Temperature	°F.	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

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Hardness	Rockwell C	45	45	45	45	45	45	45	45
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Strength	lb./sq. in.	3,750	3,750	3,750	3,750	3,750	3,750	3,750	3,750
Hardness	Rockwell C	45	45	45	45	45	45	45	45
Temperature	°F.	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

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Strength	lb./sq. in.	3,750	3,750	3,750	3,750	3,750	3,750	3,750	3,750
Hardness	Rockwell C	45	45	45	45	45	45	45	45
Temperature	°F.	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

ALLOYED PRINCIPALLY TO MEET HIGH TEMPERATURES

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Strength	lb./sq. in.	3,750	3,750	3,750	3,750	3,750	3,750	3,750	3,750
Hardness	Rockwell C	45	45	45	45	45	45	45	45
Temperature	°F.	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

ALLOYED PRINCIPALLY TO MEET HIGH TEMPERATURE

*from pages 6 and 7 of our new General Catalog. No. 3354-G

As one of the pioneers in both static (1922) and centrifugal (1931) high alloy castings, we have a wealth of experience to focus on your high alloy casting problem. Send for our catalog, study it, and then let us help you get the best alloying combination to solve your corrosion, high temperature and/or abrasion problem.



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CHICAGO OFFICE: 332 South Michigan Avenue
DETROIT OFFICE: 23906 Woodward Avenue, Pleasant Ridge, Mich.

Although initially in use for development and production of molybdenum, the furnace can also work with iron or nickel base alloys, titanium or zirconium. Its designer and builder is the industrial heating department of General Electric Co., Schenectady, N. Y.

Low Temperature Test—In current experiments, indium antimonide is plastically deformed at

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about 200°C. Then its electrical properties are measured at -190°C, where the effects of structural changes are most readily observed.

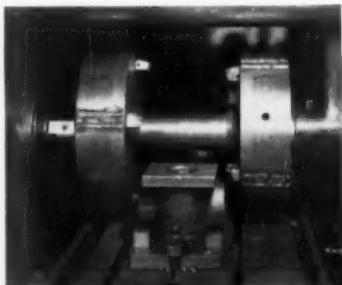
By correlating metallographic observations of the introduction and movement of defects with corresponding electrical changes in this semiconductor, R. E. Maringer and J. J. Duga of Battelle hope to learn more about the fundamental processes that eventually lead to plastic deformation and fracture of metals.

Indium antimonide was chosen for this research because it has the largest electron mobility known for any material and because it deforms plastically at relatively low temperatures.

Insert Tools Cut Costs

Specially designed straddle milling cutters in which Kendex "throw-away" insert tools are used on an old model mill have reduced tool cost to less than 1½ pct of former costs and cut milling time to one-sixth the time formerly required.

The specially designed carbide milling cutters were developed by



"Throw-away" insert tools cost less, save milling time.

Reliable Machine & Mfg. Co., Cedar Rapids, Ia., to solve a small scale machining problem with an old chain-driven No. 4 Becker Brainard machine of 5 hp. The job was straddle milling two 3-in. diam faces on cast steel pivot ends.

Flywheel Effect—The new cutters, with 12 in. diam, each hold four Kendex style KSB-12 holders with Grade K21 square inserts,

products of Kennametal Inc., Latrobe, Pa. Cutter bodies have a fly-wheel effect from their heavy construction which is advantageous with the limited power of the machine. Original tooling consisted of two 12-in. diam cutters with 22 inserted high speed steel blades per cutter.

Machine speed was increased from 31 rpm (back gear) to 240 rpm (open drive) or 750 sfpm with the new cutters and feed was in-

creased from 0.250 to 1.5 ipm. Depth of cut was retained at 3/16 in.

Occasional hard spots in castings resulted in breakage of the old inserts. As a result, blade life varied from 5 to 50 pieces per grind.

These cutters were reconditioned outside the shop at a cost of \$30 per set and with considerable loss of time.

Compare Costs—The cost reduc-

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*** MOST**

ANNOUNCING the Sensational **NEW** **miller** **GOLD STAR** **SR**

It **DELIVERS** maximum arc stability for:

- Sounder, denser welds — and more of them — in less time, with . . .
- ALL electrodes, in . . .
- Any and all positions



How is this performance possible? THE MILLER GOLD STAR SR introduces a . . .
NEW transformer

plus
NEW weld stabilized current

plus
NEW completely sealed semi-metallic rectifier

Tested across the country by practical, critical, hard-bitten working weldors, here's what they say about the new Miller GOLD STAR SR:

- "It's the DC performance I've always wanted"
- "here's DC welding current that's . . . perfect!"
- "positively handles ALL electrodes better"
- "best deal I've seen for v and o work"
- "easiest arc starting in my experience"
- "smoothest arc I ever used . . . and . . . quiet!"
- "It's just plain the MOST"

Complete particulars on the MILLER GOLD STAR SR, including inert gas and automatic fixture welding, is now available on request.

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TECHNICAL BRIEFS

tion is based on a comparison of regrinding costs of the former high speed steel blades in milling 800 pieces, the number that can be machined by a single set of Kendex "throw-away" inserts, with the cost of a set of inserts. These square button inserts have eight indexable cutting edges which will mill 100 pieces per cutting edge.

The Kendex inserts cost \$6.80, which means 85¢ per piece machined. This contrasts with regrinding costs of \$450, assuming the best figure of 50 pieces per grind, a cost of 60¢ per piece machined.

Line Paints Stampings

A new mechanized paint line, capable of applying almost every kind of paint to stamped components, has been installed at the Worcester Pressed Steel Co., Worcester, Mass. The company is a leading manufac-

turer of stampings and Hi-Pac pressure cylinders and valves.

Presteel President C. C. Higgins reports that the new line is "equipped to spray with all types of paints including oils, enamels, lacquers, Japans, bituminous enamel and primer coatings. This makes it possible for us to supply customers with painted stampings rapidly, efficiently



Conveyor speeds finishing for better quality at lower cost.

and under the very highest quality control conditions."

Continuous Flow—The mechanized line provides a continuous flow of stamped components through an eight-foot, air-finishing spray booth. From the spray booth, a conveyor system carries the freshly painted components to an oven where four banks of infrared bulbs insure rapid and perfect drying.

If oven drying is not wanted, a conveyor system by-passes the oven and carries the stampings to an area where they can dry by air.

The stamped parts are painted either individually or in groups. This is accomplished by controlling the speed of the conveyor system and the spacing of the components as they are placed on the conveyor belt.

To Save: Mix Your Own

Molders of phenolic, the plastic so widely used for housings, washing machine agitators and impellers and other applications requiring superior strength, can now save from 5 to 10¢ per lb by mixing their own impact molding materials rather

than purchasing molding compounds, according to Barrett Div., Allied Chemical & Dye Corp., New York.

The announcement is the result of four years' research at Barrett's laboratories, aimed at the development of formulae and mixing procedures which can be adopted profitably by molders. Barrett supplies the liquid phenolic resins which are an essential ingredient of impact-type phenolic molding materials.

Phenolic molding material sales, for years the backbone of the plastics industry, have not appreciably increased in the last decade because of a lack of application developments, according to Barrett.

There's A Precedent—The idea that molders can save money by mixing their own reinforced compound has its precedent in the field of polyesters. Within the last six years, polyester reinforced premix materials have entered fields never before considered for plastics and approximately 20 million pounds were produced by molders in 1956.

Satisfactory phenolic premix molding material is already in limited commercial use. Molders are finding this new low-cost material produces reinforced phenolic parts at an appreciable savings in cost.



New compounds and methods make do-it-yourself mixing easy.



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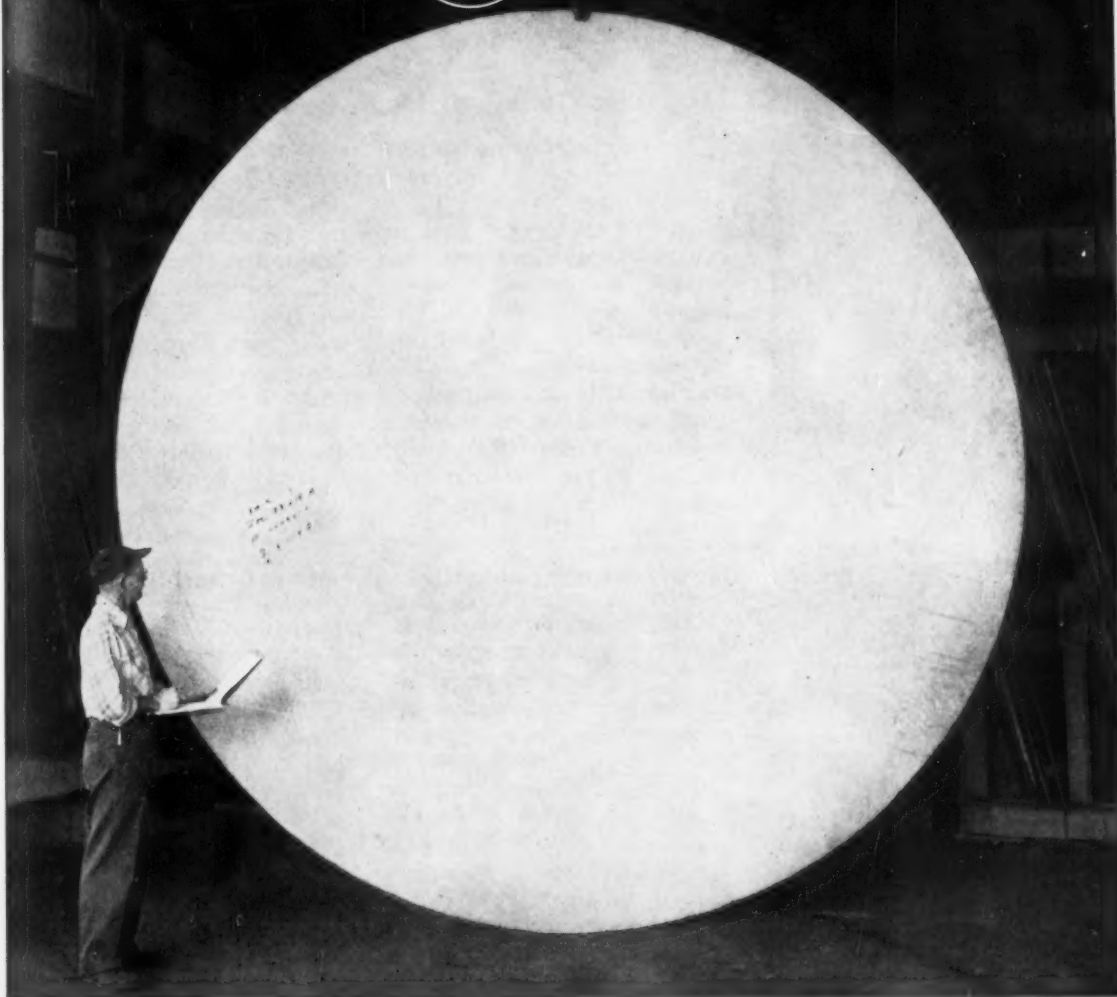
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WHY BUY STAINLESS STEEL squares

WHEN IT'S circles YOU NEED?



This circle, $\frac{3}{16}$ " thick x 164" diameter, is one piece of Type 316L stainless steel. Had the customer ordered a square, he would have paid freight on a half-ton of excess material. Also, he would have had the problem and expense of handling the square and cutting the circle.

Here are four sound reasons why Carlson customers save time and money when they order the circles they want—rather than the squares they have to cut . . .

1. If the gauge and size are circle-shearable, there is no extra charge for cutting the circle. This saves cutting labor and scrap handling expense.
2. If the gauge is such that a cutting charge applies to the square, it pays

to order the circle. This eliminates the extra charge for cutting the original square and involves only the one charge for cutting the circle.

3. Because circles weigh approximately

25% less than squares, there's a substantial saving in transportation costs.

4. Small or medium size circles are often available from stock when squares may not be. The delivery time saved can be an important factor.

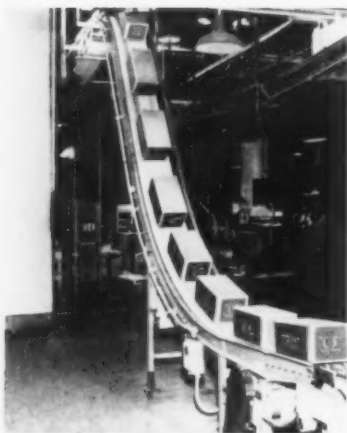
When you need stainless steel circles, come to Carlson where we specialize in stainless steel . . . that's your guarantee of dependable service.

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Plates • Plate Products • Forgings • Bars • Sheets (No. 1 Finish)

New Production Ideas

Equipment, Methods and Services



Magnetic Conveyor Hauls Loads Up 90° Slopes

Steel tote boxes or ferrous parts can be transported at angles up to 90° by this new magnetic belt conveyor. Parts can be loose or packaged in paperboard containers—they'll be gripped firmly by magnetic force. The conveyor's steep angle of inclination saves valuable floor space in crowded plant areas. In addition, the unit eliminates problems encountered in transferring cartons onto pusher bar boosters. In operation, loads are carried on a thin, rough-surface

belt which slides over a metal bed containing Alnico permanent magnets. The like poles of all the magnets are connected with metal strips. The magnetic attraction of these continuous metal strips holds the load securely on the belt as upward or downward travel proceeds. A special positive-acting drive is designed to keep the conveyor belt slack to conform to the lower vertical curve. (The Alvey-Ferguson Co.)

For more data circle No. 38 on postcard, p. 121



New Monochromatic Light Measures Flatness

Checking and inspecting surface flatness on lapped parts of any size can be done more accurately with this new, improved monochromatic light. It measures 11 in. by 14 in., with a 10-in. sq work stage. A heavy duty, 9000-v transformer provides an average of 40 foot candle power at the diffusing glass. The light head may be tilted back and adjusted for height to permit maximum light on the check area.

On pieces too large for the work stage to hold, the light head may be swung completely around to permit checking the work right on the bench. The precision instrument, four times larger than the present model offered by this firm, is a compact, self-contained, portable unit with a leather carrying strap. (Lapmaster Div., Crane Packing Co.)

For more data circle No. 39 on postcard, p. 121



Non-Clogging Gun Slings Paint At Surfaces

Unlike conventional air spray guns, this one uses centrifugal force to sling, rather than propel paint onto any surface. Used for maintenance, stenciling, light oil applications and many other purposes, it's said to avoid overspray and fogging. There are no valves or nozzles on the gun to clog. Instead, a nylon worm gear force-feeds paint or other liquid material through a hollow stem to spinning rotors that sling the liquid out of

a gate-like opening. The spray pattern ranges from 1/4 in. to 12 in. in width. An ac motor powers the unit at speeds of 5, 10, or 15 rpm. Paint-slinging force is equivalent to that provided by a one horsepower compressor for an air gun. A regulating device controls rate of flow for paint drawn up from the screw-on quart container. Unit weight is a bit over 3 lb. (Napco, Inc.)

For more data circle No. 40 on postcard, p. 121

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SPECIAL REPORTS ON FINISHING NON-FERROUS METALS

NUMBER I—Decorative, Corrosion-Resistant Finishing with Iridite

Chromate conversion coatings are well known and accepted throughout industry as an economical means of providing corrosion protection, a decorative finish or a good paint base for non-ferrous metals. However, continued developments are so rapid and widespread that many manufacturers may not be completely aware of the breadth of application of this type of finish. Hence, this digest of current information; to bring you up to date on the many ways in which you can combine salable appearance with durability in one finish at a competitive price advantage. Report II on paint base, corrosion-resistant finishes and Report III on chemically polished, corrosion-resistant finishes are available on request.

First, as a basis for this discussion, a "decorative" finish is considered as any chromate film that is used as a final finish in itself. It may be truly decorative in that its sole purpose is to enhance the beauty of the product. For example, a bright chrome-like finish or a pleasing bronze appearance are among the many effects that can be obtained. It may be functionally decorative in that it reduces reflectivity for camouflage purposes or provides a means of color-coding parts. But, in all cases, the Iridite films protect the metal against corrosive attack.

Iridite finishes are now available for all commercial forms of the more commonly used non-ferrous metals, including zinc, cadmium, aluminum, magnesium, silver, copper, brass and bronze. These films can produce a wide variety of pleasing appearances. The basic colors of the Iridite coatings are grouped below by metals.

ZINC and CADMIUM: Metallic bright, light iridescent, iridescent yellow, bronze, olive drab.

COPPER, BRASS, BRONZE: Metallic bright, yellow.

ALUMINUM ALLOYS: Clear, iridescent yellow, brown.

MAGNESIUM ALLOYS: Light brown, dark brown, black.

SILVER: Metallic bright.

In addition, many films can be modified by bleaching or by dyeing. Among the dye colors available are various shades of red, yellow, green, blue or black.

¹ Depending upon the metal and the Iridite used, corrosion resistance of clear and bright films ranges from mild passivity to as high as 500 hours in salt-spray; on heavier dark films, salt-spray resistance ranges from approximately 100 to 1000 hours.

It is this combination of decorative and corrosion resistant properties that accounts for the widening use of Iridite finishes. For example, Iridites #4-73 and #4-75 (Cast-Zinc-Brite) make possible for the first time, a combination of lustrous chemical polishing of the as-cast surface of zinc die castings and good resistance to corrosion. Further, in many cases,

WHAT IS IRIDITE?

Briefly, Iridite is the tradename for a specialized line of chromate conversion finishes. They are generally applied by dip, some by brush or spray, at or near room temperature, with automatic equipment or manual finishing facilities. During application, a chemical reaction occurs that produces a thin (.00002" max.) gel-like, complex chromate film of a non-porous nature on the surface of the metal. This film is an integral part of the metal itself, thus cannot flake, chip or peel. No special equipment, exhaust systems or specially trained personnel are required.

sizeable savings in the cost of buffing and electroplating are realized.

On many steel parts, a simple system of zinc or cadmium plate and bright Iridite is used instead of more costly electroplated finishes to provide a bright, decorative and protective finish with tremendous savings in material, equipment and labor.

In finishing aluminum, where corrosion resistance or paint adherence is the prime consideration, the aircraft industry has all but abandoned the anodizing process in favor of recently developed chromate conversion coatings, among them Iridite #14 and #14-2 (Al-Coat). These formulations and their method of application can be varied to retain the original metallic appearance while providing acceptable corrosion resistance, or to produce a fully colored brown finish that offers exceptional corrosion protection. Again, time and manpower savings are astounding—one company saved at least \$15,000 a year on maintenance of racks alone and another \$40,000 on materials and labor in only nine months. In addition, of course, hundreds of thousands of dollars are saved by eliminating the need for expenditures for generators, heating equipment and racks.

Iridites are widely approved under both Armed Services and industrial specifications because of performance, low cost and savings of materials and equipment.

In planning or designing, you should consider the many other characteristics of Iridite finishes which may enter into the specific problem. In addition to having decorative and protective functions, these chromate coatings form an excellent base for organic finishes and bonding compounds. They have low electrical resistance. Some can be soldered and welded. The Iridite film itself does not affect the dimensional stability of close tolerance parts.

You can see then, that with the many factors to be considered, selection of the Iridite best suited to your product requires the services of a specialist. That's why Allied maintains a staff of competent Field Engineers—to help you select the Iridite to make your installation most efficient in improving the quality of your product. You'll find your Allied Field Engineer listed under "Plating Supplies" in your classified telephone book. Or, write direct and tell us your problem. Complete literature and data, as well as sample part processing, is available. Allied Research Products, Inc., 4004-06 E. Monument Street, Baltimore 5, Maryland.

NEW EQUIPMENT

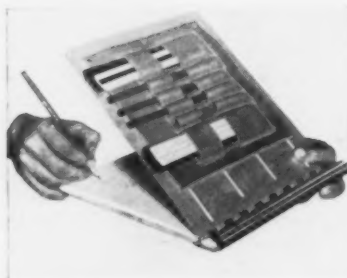


Saves Two Men In Unloading Plated Parts

Unloading rack loads of plated parts from automatic electroplating machines ordinarily requires the services of two men. A new unloading device that rocks back and forth like a "see-saw" in a 120° arc, claims to eliminate this manual effort. It's fully automatic, and has been especially designed to remove workpieces from modern, high-speed plating setups. In operation, the unit grasps and removes a rack load of parts as it comes from the drying station. Next, it tilts the load

forward to deposit the plated parts on a moving conveyor belt. Following this, the rack returns to the machine for a trip to the loading station via the stripping and rinse baths. The rocker-type unit can be synchronized with any preset cycle of the automatic plating machine. A package unit, the new unloader can be adapted to most automatic plating equipment now used in production plating shops. (Wagner Bros., Inc.)

For more data circle No. 41 on postcard, p. 121



Carry This Complete "Field Desk" In One Hand

Do gremlins keep making off with those colored pencils and scales you need to make quick notes or sketches in the shop or out in the field? Here's a new clip-sheet holder with a built-on set of cover pouches to hold just about everything you'll need in the way of pencils and scales. The aluminum,

satin-finished covers have a snap spring that eliminates the need for pressure tapes, paper clips or thumb tacks. And the cowhide pouch is flush riveted to the top cover. Many sizes are available, but the most popular holds 8½ by 11 in. paper. (Stratex Instrument Co., Inc.)

For more data circle No. 42 on postcard, p. 121



Roller Turner Tool Cuts to 90° Shoulder

Said to be the first mechanical tool holder to cut to a 90° shoulder, this new unit claims a number of advantages. Using throwaway carbide inserts, it can be applied with 0° lead. Expensive diamond wheel grinding of tools and chipbreakers is eliminated. Because cutting edges can be shifted in seconds, down-

time on the machine is also minimized. Inserts can be indexed to ±0.001 in. so that adjustments for depth and length of cut are unnecessary. The chipbreaker can also be adjusted in a few seconds when the holder is clamped in the roller turner. (Wendt-Sonis Co.)

For more data circle No. 43 on postcard, p. 121

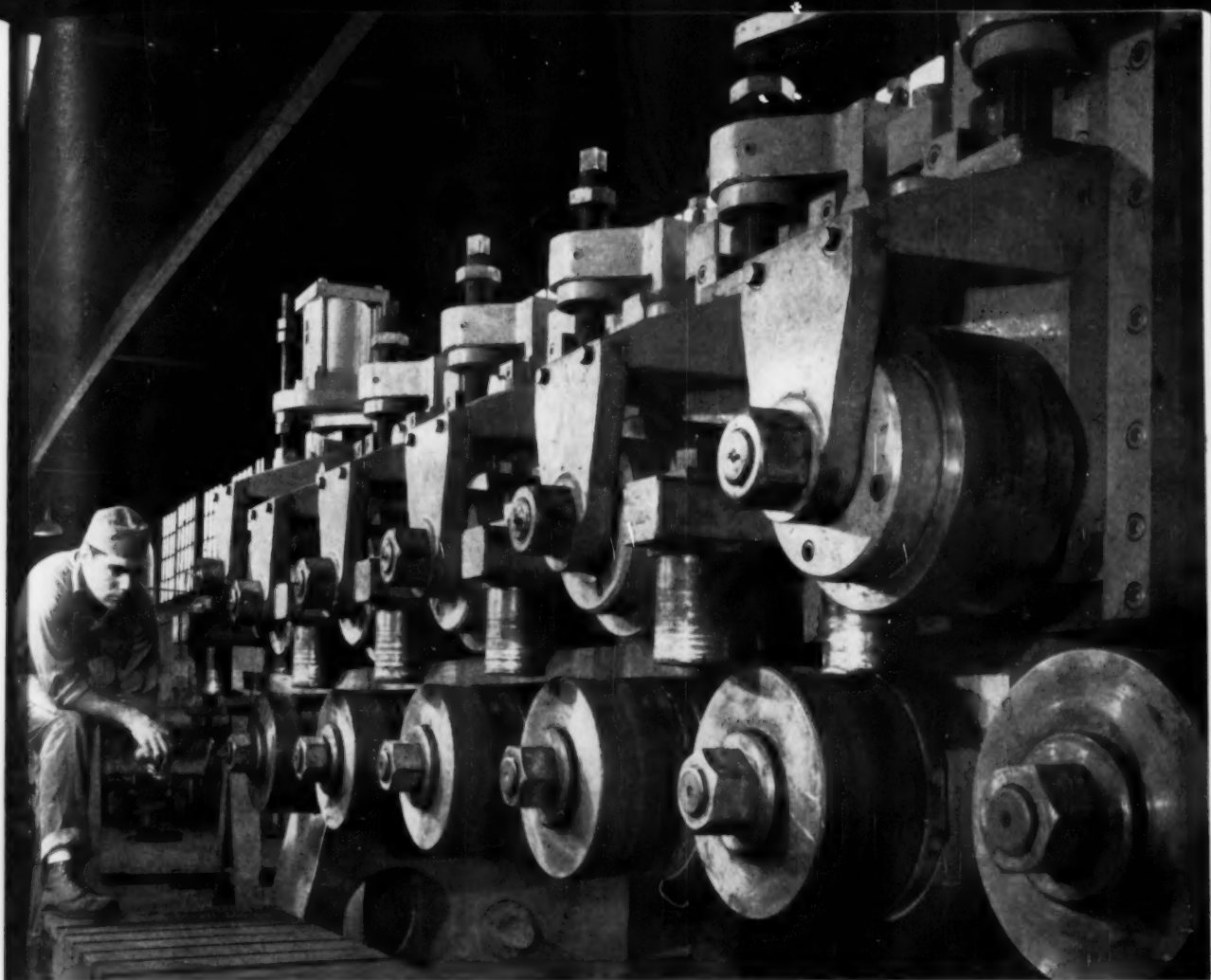


Air-Powered Stretcher Speeds Strapping

Air power does the hard work of tensioning heavy duty steel strapping with this new stretching unit. It's sturdy, compact and lightweight, yet it tensions 1¼ in. wide strapping with ease, eliminating slow hand work and operator fatigue in strapping crates, skids, coil stock and freight car bracing. The tool quickly provides up to 3900 lb of predetermined tension.

Air pressure can be easily regulated to give the proper stretch for any operation. Special features of the tool include a handy cutter attachment that quickly cuts off excess strapping. There's also a rolling gripper that makes it easy to disengage the strapping at any time the operator desires. (Signode Steel Strapping Co.)

For more data circle No. 44 on postcard, p. 121



Blaw-Knox Medart straightener installed at Jessop Steel Company's Bar Mill at Washington, Pennsylvania.

BLAW-KNOX Medart straightener cuts time 75% on stainless bars and shapes!

This 12-roll Blaw-Knox Medart shape straightener installed at Jessop Steel's bar mill does its job 75% faster than the equipment it replaced. This increased performance is due to two exclusive Medart features. All straightening is done in a single pass, cutting handling time to the bone. And set-up time is only a matter of a few minutes, can be accomplished easily to handle a wide variety of flats, squares, and angles.

Profit-wise companies throughout the industry are experiencing results like this on tough straightening jobs as well as standards.

Blaw-Knox Medart machines are the most complete line of shape straighteners in the world. Their exclusive features are engineered for uniform, high output. You can get any combination of overhung or yoke-mounted rolls, fixed or variable centers, for fast, one pass straightening of square or hex's from $\frac{1}{4}$ " to 4" and flats up to 1" x 6". Medart machines for larger sections such as structural shapes can be specially adapted for your requirements. Your Blaw-Knox Medart sales-engineer can help you apply a Medart machine exactly suited to your operations.



BLAW-KNOX COMPANY

*Foundry and Mill Machinery Division
Blaw-Knox Building • 300 Sixth Avenue
Pittsburgh 22, Pennsylvania*

NEW EQUIPMENT



Submersible Pump

Corrosion resistant even in salt water, this multi-purpose submersible electric pump handles 3300 gph at 5-ft head. It's compact, being only 11 in. high and 11 in. wide. The $\frac{1}{3}$ hp. single phase motor is hermetically sealed for trouble-free operation even when completely submerged. The unit is especially designed for sump pumping and general utility work

around plants and yards. A float switch is standard equipment for automatic operation, as is a thermal overload protector and re-starting device. (Speed King Mfg. Co.)

For more data circle No. 45 on postcard, p. 121

Safety Clothing

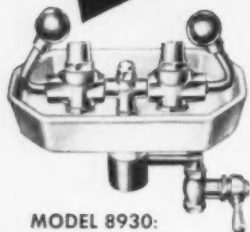
Aluminized asbestos clothing provides safe, somewhat comfortable wearing apparel for workers on "hot spot" job assignments. The new flexible, lightweight protective clothing both reflects and insulates heat away from employees working hot ingots, or involved in furnace repair, coking, slagging or similar activities in which high heat exposure is an occupational hazard. Available in coats, aprons, trousers, coveralls, sleeves, gloves, etc., the clothing is essentially asbestos material treated with a layer of vacuum distilled aluminum. The aluminum coat reflects 90 pct of all radiant heat. (Mine Safety Appliance Co.)

For more data circle No. 46 on postcard, p. 121

YOUR PLANT CAN BE SAFER!

Specify
AND INSTALL

HAWS EMERGENCY EYE-WASH FOUNTAINS



MODEL 8930:
basic eye-wash fountain, one
of numerous models.

Many workers use Haws Eye-Wash fountains daily—as a convenient way to thoroughly cleanse and soothe the eyes after exposure to dust, dirt or glaring heat.

Immediate first-aid for eye-accidents! **FOR SHOPS, FOUNDRIES, LABORATORIES, FACTORIES**—wherever eyes are exposed to danger. HAWS Emergency Eye-Wash Fountains have special fountain heads that send controlled streams of water into the eye, flushing away chemicals or other foreign particles—saving vital moments until medical aid arrives, possibly avoiding permanent injury. A complete safety installation includes the HAWS Eye-Wash Fountain combined with HAWS Drench Shower unit for contaminated bodies. **Protect your workers!**

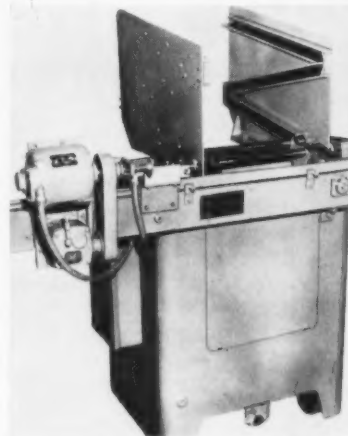
WRITE TODAY FOR FREE ILLUSTRATED FOLDER

HAWS DRINKING FAUCET CO.

1443 FOURTH STREET (Since 1909) BERKELEY 10, CALIFORNIA
Manufacturers of complete lines of drinking fountains,
faucets, electric water coolers, parts and accessories.

Bar, Tube Feeder

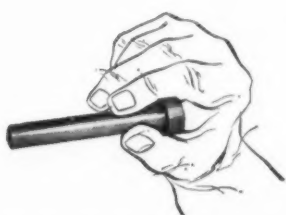
Non-stop production and automatic feeding from a conveyor line into a grinding machine are provided by this bar and tube feeder.



The unit has a magazine-loading feed with any desired constant rate of 5 to 20 fpm from the loader to the machine. Parts are cycled either by photo-electric relay or mercury

from expert hands to you . . .

DROP FORGINGS Expertly designed and made for maximum strength and toughness. Accurate, flash-free surfaces — smooth, bright, flawless finish. Forged in a wide range of metals and alloys in weights from ¼ to 15 lbs.



**COMPLETE MACHINING
FACILITIES AVAILABLE**



• Write Ritco into your plans . . . send blueprints and specifications for prompt estimates at no obligation.

UPSET FORGINGS Accurately produced high strength parts in a wide variety of metals and alloys. Ritco "Bright Finish" Upsets are free of flash, voids and blow holes . . . assure excellent machining qualities.

SPECIAL FASTENERS Ritco maintains complete facilities for making Special Fasteners in any metal or alloy . . . ferrous or non-ferrous . . . ground or unground. Bolts to 2" diameter; studs to 2½" diameter. Cut or precision rolled threads.

RHODE ISLAND TOOL COMPANY

144 WEST RIVER STREET • PROVIDENCE 1, R. I.



Exclusive New England representative for Cleveland Cap Screw Company

**DYKEM
STEEL BLUE™**

**Stops Losses
making Dies and
Templates**



Popular package is 8-oz. can fitted with Bakelite cap holding soft-hair brush for applying right at bench; metal surface ready for layout in a few minutes. The dark blue background makes the scribed lines show up in sharp relief, prevents metal glare. Increases efficiency and accuracy.

Write for sample on company letterhead

THE DYKEM COMPANY
2303G North 11th St. • St. Louis 6, Mo.

CUT SCRAPER TIME

END NIGHT CLEANUP & MORNING REBLUING



DYKEM HI-SPOT BLUE No. 107 is used to locate high spots when scraping bearing surfaces. As it does not dry, it remains in condition on work indefinitely, saving scraper's time. Intensely blue, smooth paste spreads thin, transfers clearly. No grit; noninjurious to metal. Uniform. Available in collapsible tubes of three sizes. Order from your supplier. Write for free sample tube on company letterhead.

THE DYKEM CO., 2303G NORTH 11TH ST., ST. LOUIS 6, MO.




New ARMSTRONG Adjustable Step Block

ARMSTRONG Adjustable Step Blocks provide safe, rigid, easily adjustable support for setting-up work. Eliminate haphazard set-ups, save time and labor.

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
5209 Armstrong Ave., Chicago 30, U.S.A.

Write for Catalog showing complete System of Armstrong Set-Up Tools.



*Here's the finest hook-on
bucket you can get—with extra*

**BUCKET STAMINA
LOAD CAPACITY
DIGGING POWER**

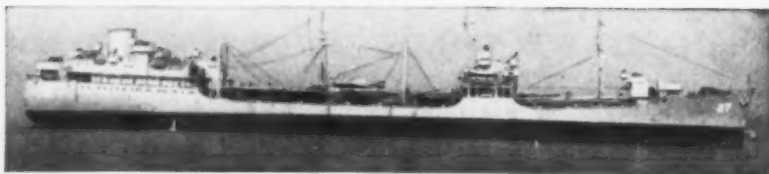
Foundries, steel mills, power plants—all acclaim this Hayward Electric Clam-Shell as the finest hook-on bucket obtainable. Handles extra large loads safely. Notable for giving many years' service with minimum maintenance. Interchangeable with your electric magnet. The Hayward Company, 50 Church St., New York 7, N. Y.

HAYWARD BUCKETS

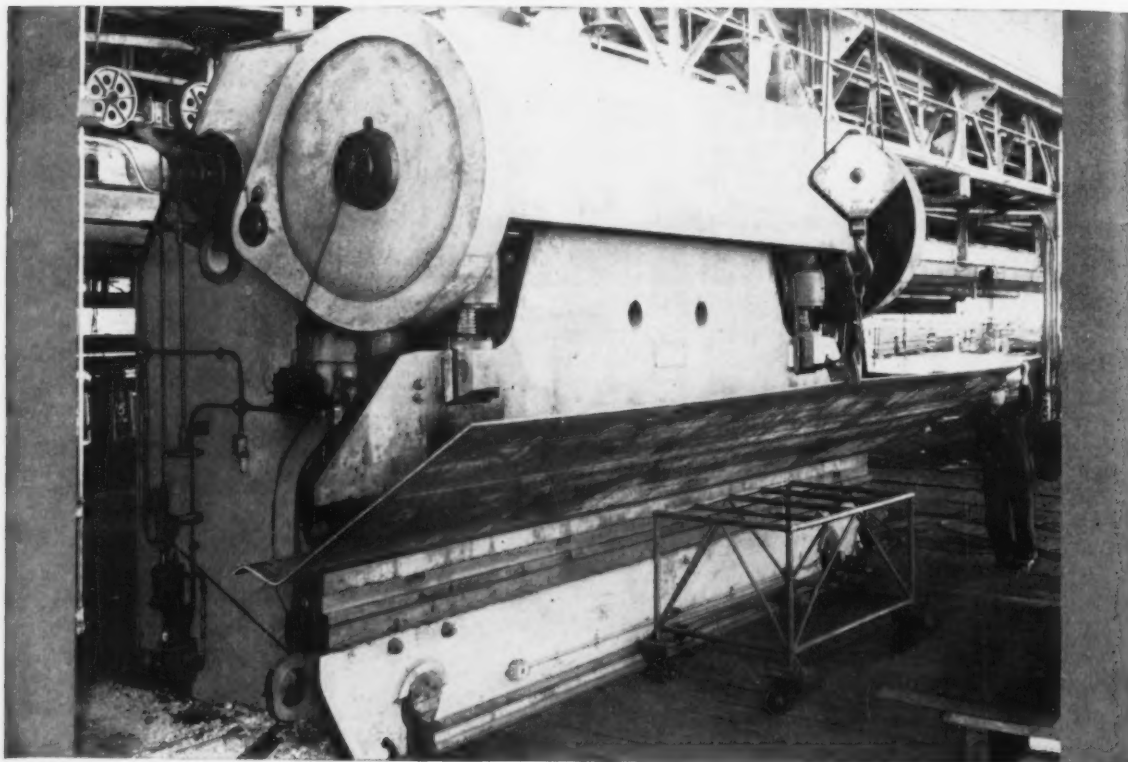
GLAM SHELL • ELECTRIC • ORANGE PEEL • GRAPPLES
famous for performance since 1888

U.S.S. KASKASKIA is typical of many ships which have had extensive bulkhead and other repairs at Moore Dry Dock Company.

Official U. S. Navy Photograph



Moore Dry Dock SPEEDS MARINE REPAIRS



Fluted bulkhead plate being formed by Steelweld bending press in plate shop of Moore Dry Dock Company for bulkhead

renewal job on U.S.S. "KASKASKIA" (A027). Size of plate: length 26', width 6', thickness $\frac{1}{2}$ ".

Long a leading West Coast ship builder and marine repairs concern, the Moore Dry Dock Company, Oakland, California, has found a large Steelweld Bending Press to be a great asset in speeding the forming of heavy plate.

Ship repair, which constitutes an important part of the company's business, often requires replacement of large sections, such as bulkheads. This necessitates the forming of plates

to various shapes to accurately replace those removed. Because of the power of their Steelweld and the ease of making adjustments, this work is carried on efficiently and satisfactorily.

The entire line of Steelwelds has an enviable reputation for continuous high-production performance. We urge you to get the facts on their many outstanding features.



GET THIS BOOK!

CATALOG No. 2010 gives construction and engineering details. Profusely illustrated.

THE CLEVELAND CRANE & ENGINEERING CO.

4862 East 281st Street • Wickliffe, Ohio

STEELWELD PRESS BRAKES

BRAKING • FORMING • BLANKING • DRAWING • CORRUGATING • PUNCHING

NEW

switch, mounted Cycling operated the machine is entirely furnished a $\frac{1}{4}$ -hp. able speed conveyor. O tooling range of control, rugged portable For more

Millin

Thin, ters saw cut narrow These rated, s of high scaled



Reinforced forged Ground room Blades able in in., in (Apex For more

Trac

A no parts f to an a A push the au ton ret position

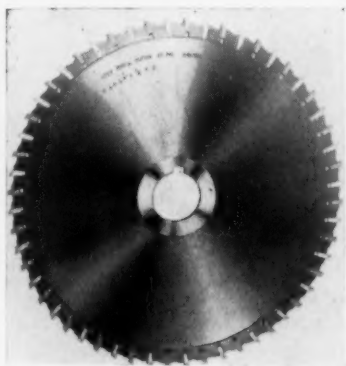
THE IRON

NEW EQUIPMENT

switch, actuated by the conveyor mounted on the out-feed conveyor. Cycling controls can also be operated by the magazine loader or the machine being fed. The model is entirely self-contained and is furnished ready to operate. It has a ¼-hp, 3-phase motor and variable speed chain drive for conveyor. Other features include special tooling available to handle a wide range of parts, full automatic control, rugged welded steel base, and portable operation. (Feedall, Inc.)
For more data circle No. 47 on postcard, p. 121

Milling Cutters

Thin, alternate-angle milling cutters saw work with ease; or they'll cut narrow, accurate slots in it. These tools feature tapered, serrated, self-locking blades. Forged of high speed steel, the blades are scaled down for narrow operations.



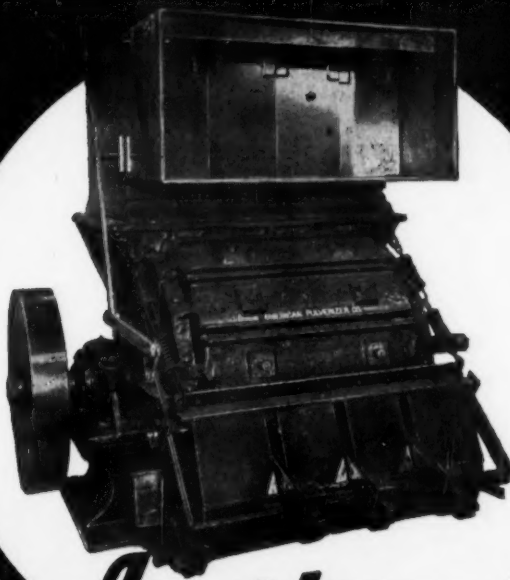
Reinforced bodies of the cutters are forged of tough, nickel-alloy steel. Ground blade faces and ample chip room result in a free-cutting action. Blades are replaceable; they're available in any diameter from 3 to 24 in., in widths of 3/16 to ¾ in. (Apex Tool & Cutter Co.)
For more data circle No. 48 on postcard, p. 121

Tracer Lathe

A new tracer lathe will duplicate parts from flat or round templates to an accuracy of 0.0003 in. or less. A push button controls starting of the automatic cycle. A stop button returns the carriage to starting position with the cutting tool and

CASH IN YOUR CHIPS

Change Metal Turnings Waste
into More Profitable Shoveling CHIPS



American
METAL TURNINGS
CRUSHERS

No progressive, profit-conscious company—who produces 10 or more tons of metal turnings per month—can afford to ignore the profit potential of a modern chip salvage system . . . with an American Metal Turnings Crusher at the core.

American installation profits include: \$4 more per ton for chips than for machine turnings; up to 50 gallons per ton in cutting oil recovery; 75% less storage; easier, faster handling.

How many profit dollars are you losing under present operations? If, for example, you're currently producing 20 tons of turnings a month . . .

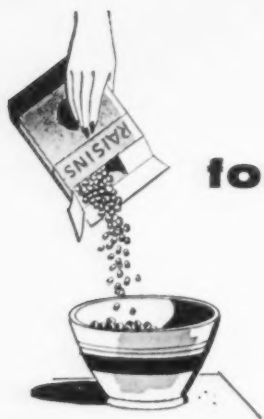
THIS COULD BE YOUR PROFIT STORY FOR NEXT YEAR!

240 Tons Metal Turnings per Year	\$ 960.00
(20 tons/month at \$4 extra per ton)	
6,000 Gallons Recovered Cutting Oil at 30¢/Gal.	\$1,800.00
(50 gals. per ton x 240 tons = 12,000 gals.)	
Half of this, 6,000 gals., can be credited to use of chips instead of turnings in reclamation)	
Estimated Savings in Manpower, Storage, Tools, Maintenance, Freight, etc.	\$ 300.00
TOTAL GROSS PROFIT	\$3,060.00



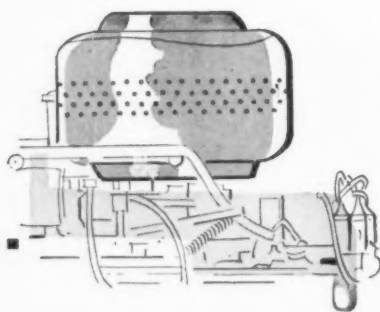
WRITE for Metal Turnings Crusher Bulletin.

1439 MACKLIND AVE. • ST. LOUIS 10, MO.



for raisins

**or car
engines...**



you can use

CF&I INDUSTRIAL WIRE CLOTH

Versatile CF&I Industrial Wire Cloth helps assure the housewife of stem-free raisins and the automobile driver of an efficient vehicle. For raisin processors stem their raisins with a special CF&I Wire Cloth that has both round and square wires... and other specialized types of cloth are used in air filters for automobile engines.

If you make raisin-stemming equipment... air filters... or any other product which screens, filters, grades, cleans, processes or requires reinforcement, it'll pay you to get the complete story on CF&I Industrial Wire Cloth. Produced to your most exacting specifications, CF&I Industrial Wire Cloth can be

supplied in a wide variety of weaves and meshes made from ferrous or non-ferrous metals. Get the complete story from your CF&I representative today.

3696



THE COLORADO FUEL AND IRON CORPORATION: Albuquerque • Amarillo • Billings • Boise • Butte • Casper • Denver • El Paso • Ft. Worth • Houston • Lincoln (Neb.) • Los Angeles • Oakland • Oklahoma City • Phoenix • Portland • Pueblo • Salt Lake City • San Antonio • San Francisco • Seattle • Spokane • Wichita
WICKWIRE SPENCER STEEL DIVISION: Atlanta • Boston • Buffalo • Chicago • Detroit • New Orleans • New York • Philadelphia

CF&I OFFICES IN CANADA: Montreal • Toronto

CANADIAN REPRESENTATIVES AT: Calgary • Edmonton • Vancouver • Winnipeg

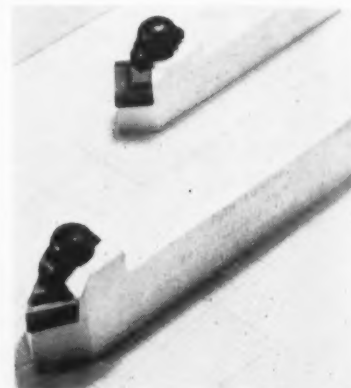
NEW EQUIPMENT

stylus retracted. A carriage limit switch is integral with the carriage stop and is fitted to the bed. During an automatic cycle, closing of this switch initiates tool relief and returns the carriage to its "start" position. (Elgin Tool Works, Inc.)

For more data circle No. 49 on postcard, p. 121

Insert Toolholders

Cemented carbide indexable inserts made by one firm now fit into 116 styles of toolholders. Some 26 of these are of a new style: positive rake cutting tool holders. The improved cutter mounts employ a new



clamp idea that provides good gripping action and chip clearance. This aids chip control, important in turning operations. The clamp can be used with or without the chip breaker. Of particular value when using a rear tool carriage is the accessibility of the clamp screw. It can be gotten to from both top and bottom of the holder. (Carmet Div., Allegheny Ludlum Steel Corp.)

For more data circle No. 50 on postcard, p. 121

Hand Lubricator

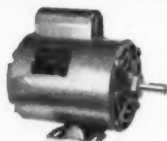
A self-contained, permanently air-primed portable hand lubricator has a 5 lb grease capacity and weighs 15 lb fully loaded. Maximum air pressure of the primed unit is 7500 psi. The lubricator can be slung over a shoulder and operated with one hand, leaving the other hand free for the operator

Reduce Down Time—Power your Equipment with Dependable Wagner Motors

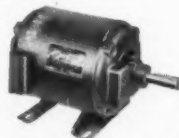
Sixty-six years of experience goes into the building of Wagner Motors. Their reputation for reliability, their electrical characteristics, price and prompt delivery make them a sound choice for your equipment.

Whatever your motor requirements may be—single-phase or polyphase... $\frac{1}{8}$ or 500 horsepower—Wagner can offer a standard motor that is entirely dependable in its specific application. A few of the many motors in the Wagner line are shown below.

FRACTIONAL HP



TYPE RK — Capacitor-start Induction. For general purpose applications. Single-phase. Rigid or resilient mounting. 48 frame: $\frac{1}{8}$ or $\frac{1}{4}$ hp. 56 frame: $\frac{1}{2}$ through $\frac{3}{4}$ hp. Also available in integral ratings through 5 hp.



TYPE RA — Repulsion-start Induction. For general purpose applications. Single-phase. High starting torque—low starting current. $\frac{1}{8}$ through $\frac{3}{4}$ hp. Also available in integral ratings through 15 hp.



TYPE RB — Split-phase Induction. For easy starting applications. Single-phase, resilient mounting. 48 frame: $\frac{1}{8}$, $\frac{1}{4}$ or $\frac{1}{2}$ hp.



TYPE RP — Polyphase Squirrel-cage Induction. General purpose, normal torque. 56 frame: $\frac{1}{4}$ through $\frac{3}{4}$ hp.

INTEGRAL HP

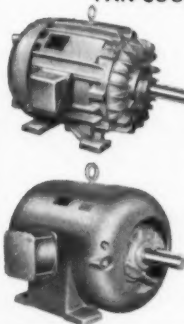
DRIP-PROOF



TYPE DP — Squirrel-cage Induction, corrosion resistant cast iron frames. 1 through 125 horsepower.

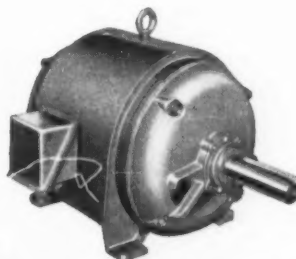


TOTALLY ENCLOSED FAN-COOLED



TYPES EP AND JP

Standard and explosion-proof. Squirrel-cage Induction, corrosion resistant cast iron ribbed frames. 1 through 30 hp—smooth frames, 40 through 250 hp.



OPEN TYPE POLYPHASE SQUIRREL CAGE

TYPE RP — Drip-proof. Suitable for all general purpose applications. Available in ratings 150 through 500 hp.

OTHER WAGNER MOTORS

In addition to a complete line of standard motors, Wagner also furnishes Increment Type Motor and Starter Combinations... Wound Rotor Polyphase Motors... Jet Pump Motors... Vertical and Flange Mounted Motors... Hermetic Motors... Gear Motors and Direct-Current Motors. Consult the nearest of our 32 branch offices, or mail coupon today for full information on the complete Wagner line.

Wagner Electric Corporation

6403 Plymouth Ave., St. Louis 14, Mo.

Please send Bulletin MU-185 on your complete line of Motors.

NAME _____
POSITION _____
COMPANY _____
ADDRESS _____
CITY & STATE _____



M57-10A

NEW EQUIPMENT

to climb or support himself. It's refillable in seconds and is said to work well in cold weather. (Aro Equipment Corp.)

For more data circle No. 51 on postcard, p. 121

Torch Lighter

This welding-torch lighter can be plugged into any 110-v outlet. An instantaneous light results whenever the torch is brought within a

few inches of the top of the device. It's said to operate indefinitely. (Thermacote Co.)

For more data circle No. 52 on postcard, p. 121

Stacks Stampings

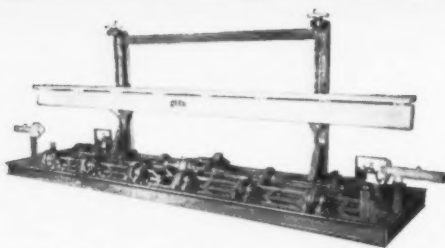
A new line of chutes will carry and stack stampings up to 20 ft away from presses. Springy, small, thin, or delicate stampings are carried automatically to packaging or

assembly lines without harm. Maximum load capacity of the chutes is 5000 lb, and there is no limit on the maximum size and thickness of stampings that can be carried in this manner. Minimum stamping thickness for this mode of travel is about 0.005 in. (Clark Industries.)

For more data circle No. 53 on postcard, p. 121

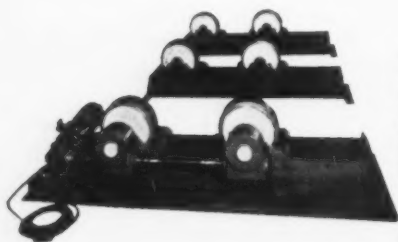
WEBB TANK PRODUCTION MACHINERY

REED TRACK SUPPORTS For Automatic Welding Head Carriages



Increase production — use this fixture on 4' to 12' diameter work. Welding track is 24' to 34' long. Powered vertical adjustment is available for all models. May be used with your present turning rolls, welding positioners, special jigs for straight seam work, or portable type rolls illustrated below.

REED Portable Type TURNING ROLLS



For manual or automatic welding and other operations requiring rotation of a cylindrical vessel. Capacities range from 3 tons to 75 tons; larger units built to special order. Powered by electric motor with variable speed transmission. Readily portable, they may be used free or anchored to the floor as desired.



Horn Type Fixtures



Cylinder Flange Offsetters



Assembly Fixtures



Unit Type Turning Rolls



Portable Turning Rolls



Automatic Welding Track Supports

FOR ILLUSTRATED LITERATURE WRITE DEPT. E

REED

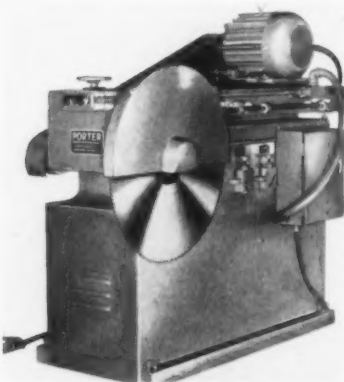
EQUIPMENT DIVISION

THE **WEBB** CORP.

WEBB CITY, MO.
U. S. A.

Cutoff Saw

For heavy-duty work, this automatic cutoff saw works nonferrous materials. Available in two stroke sizes, 24 and 36 in., the unit features a hydraulically operated car-



riage. This adjusts for cutting and return feed speed variations from zero to 55 fpm. Operation is simple. A worker merely positions the stock and presses an electrically operated foot pedal. The saw blade moves forward, cuts and returns automatically. (C. O. Porter Machinery Co.)

For more data circle No. 54 on postcard, p. 121

Height Gage

Positive action of this height gage is controlled by indexing at 0.5-in. intervals, by means of hardened steel balls set in the stainless steel column. There's a micrometer gage for intermediate settings, which allows direct readings to within a tolerance of 0.0005 in. The gage eliminates the vernier scale altogether. (Foster Supplies Co.)

For more data circle No. 55 on postcard, p. 121



the **RIGHT** **SIZE** and **SHAPE...**

in welded steel tubing

What size do you need? Standard produces welded tubing in a vast range of sizes and grades—stainless, carbon and low alloy. What shape do you need? Standard produces it in round, square, rectangulars, and a host of special shapes. Maybe you have a design problem?

The specialists at Standard are anxious to work with you. Whether your requirements call for structural, mechanical, or pressure tubing, Standard produces them to your specifications.

STANDARD

THE STANDARD TUBE COMPANY
24400 PLYMOUTH ROAD • DETROIT 39, MICHIGAN

Welded stainless tubing and pipe • Welded carbon steel mechanical • Boiler and heat exchanger • Exclusive expanded patterns • Special shapes • Steel Tubing—Sizes $\frac{1}{8}$ " OD to $5\frac{1}{2}$ " OD—.028 to .240 wall • Stainless Pipe—Schedule 40: $\frac{1}{8}$ " to 2" I.P.S., Schedules 5 and 10: $\frac{1}{8}$ " to 4" I.P.S.—Stainless Tube— $\frac{1}{4}$ " to $4\frac{3}{4}$ " OD—.025 to .365 wall on square, rectangular, and special shapes of equivalent sizes.



FREE

Write for 8-page
folder on all
Standard
products.

STEEL MEN!



WHY PAY MORE THAN \$12 PER TON FOR FLUX BLOCKS?

ORIGINALLY, glass tanks were built of small, fire-clay brick or sandstone blocks. No. 1 fire-brick or type can be bought for \$12 per ton. Clay flux blocks of essentially the same materials cost \$60 per ton. Why pay a 500% premium simply to get bigger pieces of the same material?

Your reply, of course, is that the larger pieces improve furnace life by 40% to 50%—that you are willing to pay 500% more for your blocks, to get 50% greater life for your tanks. And that is true of every glass-tank owner in America today. Since you are already paying a 500% premium for a 50% return, why is it not logical for you to buy Corhart Electrocast, at a smaller price premium over clay, AND GET OVER 200% INCREASE IN FURNACE LIFE?

If you are looking for economy in the

purchase of your tank blocks, you need pay only \$12 per ton. On the other hand, if you want the lowest cost per day of tank life, or the lowest cost per ton of glass produced, you can not stop at the \$12 block or at the \$60 block.

Corhart Electrocast is the world's highest-priced refractory per ton of blocks, and the lowest-cost refractory per ton of glass produced . . . May we prove it to you? Write for definite facts. Address: Corhart Refractories Co., Incorporated, 16th and Lee Sts., Louisville, Ky.

**CORHART
ELECTROCAST
REFRATORIES**

IN June, 1933, when this old ad appeared, Corhart Electrocast was still new in the glass industry. Only a few glass companies dared then to buy it, "one of the world's highest-priced refractories". But today its use is practically universal . . .

Now Corhart 104 is still new in the steel industry — but despite its high price, it offers steel furnace operators the same opportunities for greater production and lower costs that Corhart Electrocast brought to glass.

May we send you complete data? Address: Corhart Refractories Co., Incorporated, 1610 West Lee Street, Louisville, Kentucky, U.S.A., SPring 8-4471.



CORHART 104 ELECTROCAST REFRACTORY

The words "Corhart" and "Electrocast" are registered Trade Marks which indicate manufacture by Corhart Refractories Company, Incorporated. Corhart Refractories Co., Incorporated, 1600 West Lee Street, Louisville 10, Kentucky, U.S.A. — Telephone SPring 8-4471.

The Iron Age Summary

New Orders Add Life to Market

A late summer flurry of steel orders is a good omen for the fall steel market.

Big question is when auto companies will come into the market, and how strongly. Meanwhile, others are getting inventories in shape for brisk fall business.

■ A pre-fall pickup in steel orders indicates the market is getting set for a major strengthening in the middle of September. The moderate increase in new orders is general in most areas of the country.

From a consumer viewpoint, the mild flurry of orders reflects a desire by many users to protect their inventory position. With many consumers operating at a rock-bottom level, they are insuring themselves from the effects of a major surge of automotive buying.

When Is the Question—Just when the auto industry will come

into the steel market for its 1958 model runs holds the key to the market situation. Automakers are stretching out model runs of successful 1957's and may not tip their steel buying hands until more than a week after Labor Day.

It's significant that the former rule of thumb of 45-day lead time for major automotive orders can no longer be counted on. Automotive buyers count on getting steel when they want it.

Inventories Low—There is growing evidence that the auto industry is also operating on an extremely low inventory level. A wildcat shutdown of a major automotive supplier forced shifting of orders to other mills, with deliveries on time as a "must" condition.

Some preliminary orders for October delivery are beginning to trickle out of Detroit, but not enough to set the pattern. They are confined to sheets, with the bar market not feeling it as yet.

Got the Word—It's significant that auto parts makers, who may have the word from their customers, are stepping up their ordering for late September, early October delivery. Some major stampers are starting to place their own tonnage.

The recent placing of many moderate orders will lift August about 5 pct better than July. Mills are still operating on backlogs of orders for plate, heavy structurals, some tubular products, especially line-pipe.

Other Factors—There is a tendency for mills to step up their semi-finished steel stocks because orders are slightly better for plates, shapes, and cold-rolled sheets.

Oil companies have eased up a little on their pipe orders and oil country goods are being affected. This is not expected to become a trend. Orders from the oil companies will start to strengthen about the time the general steel market gets going in September.

Steel Output, Operating Rates

Production (Net tons, 000 omitted)	This Week 2,100	Last Week 2,074	Month Ago 2,035	Year Ago 2,375
Ingot Index (1947-1949=100)	130.7	129.1	126.7	147.9
Operating Rates				
Chicago	86.5	83.0	100.0	97.5
Pittsburgh	84.0	81.0*	82.0	95.0
Philadelphia	92.0	93.0	83.0	97.0
Valley	74.0	72.0*	73.0	90.0
West	102.00	99.0*	103.0	96.0
Buffalo	95.0	95.0	90.0	107.0
Cleveland	88.0	90.0	76.0	99.0
Detroit	81.0	50.0*	85.0	95.0
S. Ohio River	88.0	83.0*	64.0	76.0
South	85.3	85.3	87.5	87.0
Upper Ohio R.	87.0	94.0*	72.0	99.0
St. Louis	79.0	84.5	79.0	92.0
Northeast	37.0	38.0	37.0	100.0
Aggregate	82.0	81.0	79.5	96.5

*Revised

Prices At A Glance

(cents per lb unless otherwise noted)

	This Week	Week Ago	Month Ago	Year Ago
Composite price				
Finished Steel, base	5.967	5.967	5.967	5.622
Pig Iron (Gross ton)	\$66.40	\$66.40	\$66.40*	\$63.15
Scrap, No. 1 hvy (Gross ton)	\$53.00	\$53.50	\$53.83	\$57.50
Nonferrous				
Aluminum ingot	28.10	28.10	27.10	25.90
Copper, electrolytic	28.50	28.50	29.25	40.00
Lead, St. Louis	13.80	13.80	13.80	15.80
Magnesium ingot	36.00	36.00	36.00	34.50
Nickel, electrolytic	74.00	74.00	74.00	64.50
Tin, Straits, N. Y.	94.50	94.00*	96.00	98.75
Zinc, E. St. Louis	10.00	10.00	10.00	13.50

*Revised

Office Furniture Market Tight

You can get better service and better furniture these days, but if there's a building boom in your area you'll have to wait.

Modular construction, color are the biggest new factors.

■ Office furniture buyers can expect better service, more efficient equipment, and greater flexibility with standard pieces than ever before. But they can also expect to wait for what they want, unless some advance planning is done.

Business is booming for office furniture makers. Sales in 1957 are expected to at least match last year, and some say there will be a slight increase.

Area Variations—Seasonal variations have pretty well flattened out, but have been replaced to some

degree by area variations. Considering the low end of the spread for areas with little activity, and the high end for places in an office building boom, here's the delivery picture:

If you just want a couple of desks and related equipment, you might be able to take them home with you. Or you may wait a couple of weeks.

For enough desks, chairs, tables, file cabinets and partitions to equip a department you'll wait 3 to 6 weeks.

Figure 3 to 6 months for a complete modernization project. And if your company is big, and you want special pieces, you may wait a year.

In June about 3/4 of the industry raised prices about 7 pct. Those that didn't, say they won't.

Demand Will Increase—Demand

is expected to hold up pretty well. Robinson Newcomb, former economic advisor to Presidents Truman and Eisenhower, says in a study for the Wood Office Furniture Institute, that the growth in number of desk workers is outstripping growth in total non-agricultural employment. By 1960, Mr. Newcomb says, there will be 50 pct more desk workers than in 1947, and 30 pct more total employment.

Competition between wood and metal furniture makers has prompted several new concepts. Both have gone in big for modular construction—a building block system using standard sections in any number of combinations to conform to specific requirements.

New Features—All metal office furniture makers now offer a very wide range of colors.

Special tops are part of most makers' lines. On metal, the most common is a hard, stain-and-burn-resistant plastic. Some wood furniture makers use an inlaid foil.

And most office furniture companies are now set up to go farther than merely selling you the equipment. Many have designers to work out special pieces, and even floor plans and layouts. The furniture people will handle an entire program of modernization.

Office Designers—For an extensive, company-wide modernization project, there are firms which will do the job. Designs for Business, Inc., New York, is a pioneer in an industry which has grown up since World War II.

Prices

Pittsburgh Lectrodryer Div. of McGraw-Edison Co. increases prices 10 pct on its general line of industrial driers and 15 pct on special atmospheric dehumidifiers.

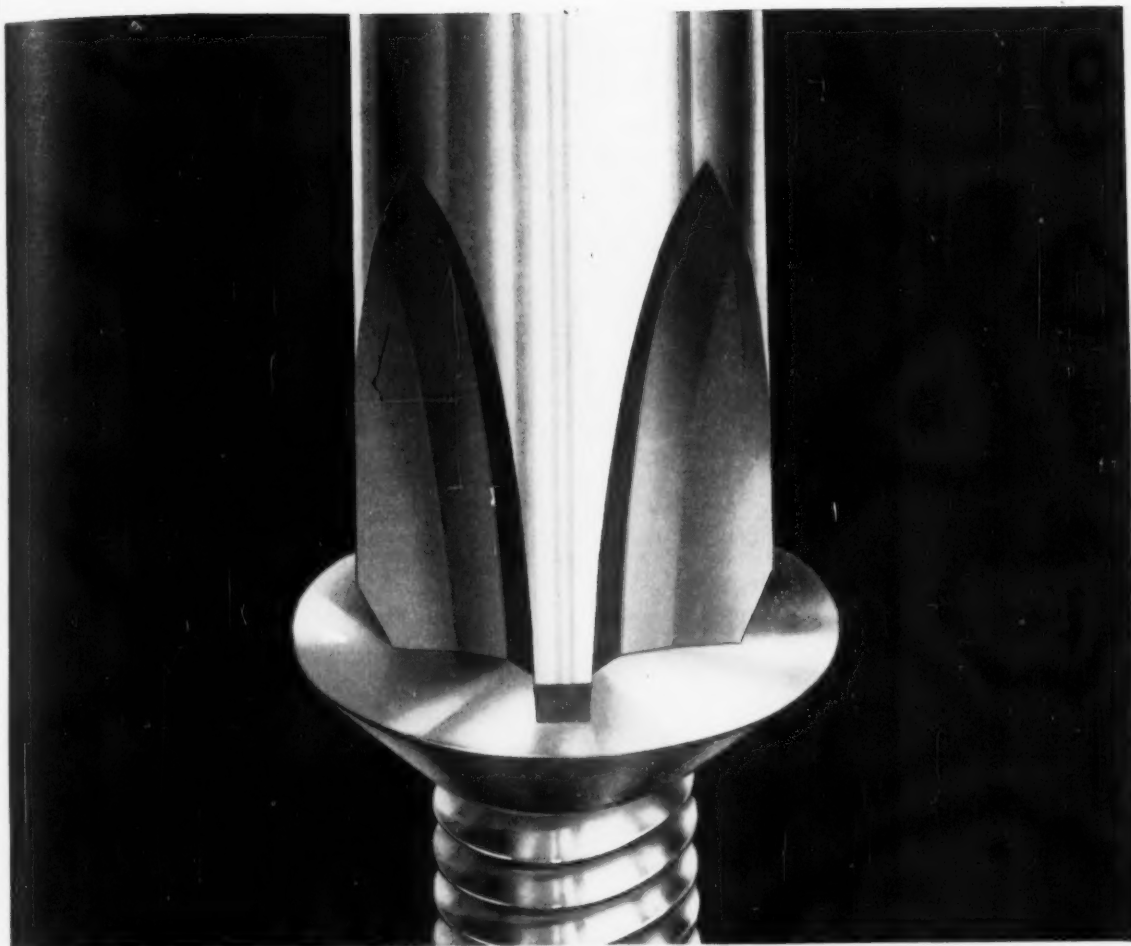


STREAMLINED: In redesigning this office, Designs For Business, Inc., New York, came up with this conveyor to speed up order handling. What took one to three days to process now takes 15 minutes to 4 hours.

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Large enough to meet any production schedule . . .

Interested enough to care about every customer!

AMERICAN is the name!

American is the name for fastener service because we're staffed and equipped to meet the demands of any high-volume production schedule . . . and flexible enough to be interested in *every* customer.

This kind of "we-care-about-you" service is one of the four factors that make American the biggest bargain in fasteners . . . in price, service, quality and research.

American Gives You More of All Four

In Quality, with such control techniques as statistical sampling of production runs to maintain product uniformity.



American!

In Research, that developed the original Phillips fastener.

In Service, for clockwork delivery on anything from single-case to carload lots.

Prices may sometimes vary under local circumstances, but nowhere will you get more of all four than from American.

Make Your Own Comparison: send us your inquiry for price and delivery or your specifications for special fasteners. Write:



SCREWSTICK, another American development, being loaded into air-powered driver.

AMERICAN SCREW COMPANY

Willimantic, Conn.
Chicago, Ill. • Detroit, Mich.

Order Books Begin Filling Out

A variety of buyers is showing more interest in September and fourth quarter orders.

Still unheard are the automakers whose tonnage requests should swell October books.

■ The steel ordering ground swell is getting under way. With the large automotive buyers still holding back, the mills are finding more customer interest in September and fourth quarter bookings.

The upsurge — most noted for cold-rolled sheet and bar — will make September the best month for the mills since June. In at least one market area between 15 and 20 pct of fourth quarter cold-rolled sheet tonnage has already been booked. Hot-rolled products, while not as active, are also showing more signs of life. But strip, despite some fourth quarter buying, is still lagging a bit with some mills continuing to book light plate rollings.

Best Yet To Come—The increased flow of orders is apparently coming from a wide variety of buyers. But not from many automotive, appliance or warehouse customers. What automotive-related ordering there is comes from parts suppliers who have their orders from Detroit. One hinge maker, for example, given a contract to turn out parts for '58 and '59 cars, asked to have September tonnage moved to the first half of the month. The request was granted.

With orders from the automakers themselves due to add further depth to the market in October, the picture for the producers is looking brighter all the time.

Plate—Heavy plate mills expect capacity operations for balance of the year. Pittsburgh producers have opened fourth quarter books and report ordering brisk. Warehouses in both Pittsburgh and Cleveland are filled up on light plate. Some Chicago mills are going to have third quarter carryovers because of rolling breakdowns. Eastern mills continue plate allocations on a month-to-month basis.

Structurals—While fourth quarter bookings are strong, situation is a little confused because some mills already have carryovers from the third quarter. Some amount to as much as six weeks. A Chicago producer, for example, is reducing fourth quarter quotas to catch up. Heavier structurals at Pittsburgh are still on allocation. Light section structurals and angles to about 3 x 3 in., which can be produced on bar mills, are fairly easy to get.

Bar—August ordering is running ahead of July, September is expected to be the best of the three months. Cold finished bar is showing some slight upturn at Cleveland.

PURCHASING AGENT'S CHECKLIST

Process gold plates without electric current or special equipment. **P. 61**

Aluminum pipe gets heavy use in farm sprinkler irrigation systems. **P. 62**

Controlled addition of copper to cold drawn steel bar is claimed to aid machinability and improve wear. **P. 112**

but standard sizes can still be obtained in about a week. Specials require up to 4 weeks. Hot-rolled product at Chicago is on four or six weeks' delivery. Cold finished bar ordering for September has improved.

Tinplate—Production for the remainder of the year is expected to dip because of drought conditions in the East. Canmakers believe the crop reduction will result in less cans being necessary.

Wire Products — Welded wire fabric is showing a slight pick-up following settlement of labor troubles in the concrete industry. However, much construction work will still be put off until next season.

Merchant wire products are generally available on 3-4 week delivery at Cleveland.

However, Chicago area producers say wire bookings through first half of August are running 250 pct ahead of July bookings. Spot shortages in fastener inventories are showing up with a resulting step-up in the volume of wire shipments.

Pipe and Tubing — Some users and distributors of oil country goods are not taking their full allocation for the third quarter. However, the loose tonnage so far has been quickly gobbled up. Seamless pipe continues strong. Pittsburgh producer says, "We've got more orders than we know what to do with."

Pig Iron — Production in the Cleveland area is due for a slight increase as the end of the foundry vacation season arrives. Getting some early orders has encouraged producers.

Iron Ore—Ore shipments have spurted 13.9 million tons ahead of last year when the steel and boat strikes carved a big hole in the season record. Some ore is piling up on Lakes docks because blast furnaces are taking less than usual. While the pile-up is normal, the ore season could end earlier than usual if steel production does not rebound in the fourth quarter.

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COMPARISON OF PRICES

(Effective Aug. 20, 1957)

Sold prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.
Price advances over previous week are printed in Heavy Type; declines appear in *Italics*.

	Aug. 20 1957	Aug. 13 1957	July 23 1957	Aug. 21 1956
Flat-Rolled Steel: (per pound)				
Hot-rolled sheets	4.925c	4.925c	4.925c	4.675c
Cold-rolled sheets	6.05	6.05	6.05	5.75
Galvanized sheets (10 gal.)	6.60	6.60	6.60	6.30
Hot-rolled strip	4.925	4.925	4.925	4.669
Cold-rolled strip	7.17	7.17	7.17	6.870
Plate	5.12	5.12	5.12	4.87
Plates, wrought iron	13.15	13.15	13.15	10.40
Stainl's C-R strip (No. 302)	52.00	52.00	52.00	47.50

Tin and Terneplate: (per base box)				
Tinplate (1.50 lb.) cokes	\$10.30	\$10.30	\$10.30	\$9.85
Tin plates, electro (0.50 lb.)	9.00	9.00	9.00	8.55
Special coated mfg. ternes	9.55	9.55	9.55	9.10

Bars and Shapes: (per pound)				
Merchant bar	5.425c	5.425c	5.425c	5.075c
Cold finished bars	7.30	7.30	7.30	6.85
Alloy bars	6.475	6.475	6.475	6.125
Structural shapes	5.275	5.275	5.275	5.00
Stainless bars (No. 302)	45.00	45.00	45.00	40.75
Wrought iron bars	14.45	14.45	14.45	11.50

Wire: (per pound)				
Bright wire	7.65c	7.65c	7.65c	7.20c

Rails: (per 100 lb.)				
Heavy rails	\$5.525	\$5.525	\$5.525	\$5.075
Light rails	6.50	6.50	6.50	6.00

Semifinished Steel: (per net ton)				
Revoling billets	\$77.50	\$77.50	\$77.50	\$74.00
Slabs, reolling	77.50	77.50	77.50	74.00
Forging, billets	96.00	96.00	96.00	91.50
Alloy blooms, billets, slabs	114.00	114.00	114.00	107.00

Wire Rod and Skelp: (per pound)				
Wire rods	6.15c	6.15c	6.15c	5.80c
Skelp	4.875	4.875	4.875	4.225

Finished Steel Composite: (per pound)				
Base price	5.967c	5.967c	5.967c	5.622c

Finished Steel Composite
Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

	Aug. 20 1957	Aug. 13 1957	July 23 1957	Aug. 21 1956
Pig Iron: (per gross ton)				
Foundry, del'd Phila.	\$70.38	\$70.38	\$70.38	\$67.76
Foundry, Valley	66.50	66.50	66.50	63.00
Foundry, Southern Cn'ty	70.67	70.67	70.67	67.17
Foundry, Birmingham	62.50	62.50	62.50	59.00
Foundry, Chicago	66.50	66.50	66.50	63.00
Basic, del'd Philadelphia	69.88	69.88	69.88	66.84
Basic, Valley furnace	66.00	66.00	66.00	62.50
Malleable, Chicago	66.50	66.50	66.50	63.00
Malleable, Valley	66.50	66.50	67.00	63.00
Ferromanganese, cents per lb.	12.75c	12.75c	12.75c	10.75c

74 to 76 pct Mn base.

Pig Iron Composite: (per gross ton)				
Pig iron	\$66.40	\$66.40	\$66.40*	\$63.15

Scrap: (per gross ton)				
No. 1 steel, Pittsburgh	\$55.50	\$55.50	\$56.50	\$57.50
No. 1 steel, Phila. area	51.50	51.50	53.50	57.50
No. 1 steel, Chicago	52.00	53.50	51.50	57.50
No. 1 bundles, Detroit	50.50	50.50	48.50	54.50
Low phos., Youngstown	57.50	58.50	57.50	65.50
No. 1 mach'y cast, Philadelfa	58.50	58.50	58.50	60.50
No. 1 mach'y cast, Chicago	53.50	53.50	52.50	59.50

Steel Scrap Composite: (per gross ton)				
No. 1 heavy melting scrap	\$53.00	\$53.50	\$53.83	\$57.50

Coke, Connellsville: (per net ton at oven)				
Furnace coke, prompt	\$15.38	\$15.38	\$15.38	\$14.50
Foundry coke, prompt	\$17.50-\$19	\$17.50-\$19	\$17.50-\$19	\$17.50

Nonferrous Metals: (cents per pound to large buyers)				
Copper, electrolytic, Conn.	28.50	28.50	29.25	40.00
Copper, Lake, Conn.	28.50	28.50	29.25	40.00
Tin, Straits, N. Y.	94.50*	94.00*	96.00	98.75
Zinc, East St. Louis	10.00	10.00	10.00	13.50
Lead, St. Louis	13.80	13.80	13.80	15.80
Aluminum, virgin ingot	28.10	28.10	27.10	25.90
Nickel, electrolytic	74.00	74.00	74.00	64.50
Magnesium, ingot	36.00	36.00	36.00	34.50
Antimony, Laredo, Tex.	33.00	33.00	33.00	33.00

* Tentative. † Average. * Revised.

Pig Iron Composite
Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Steel Scrap Composite
Averages of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

STAINLESS STEEL

←To identify producers, see Key on P. 158→

Producing Point	Basic	Fdry.	Mall.	Bess.	Low Phos.
Birdsboro, Pa. B6	68.00	68.50	69.00	69.50	
Birmingham R3	62.00	62.50*			
Birmingham W9	62.00	62.50*	66.50		
Birmingham U4	62.00	62.50*	66.50		
Buffalo R3	66.00	66.50	67.00	67.50	
Buffalo H1	66.00	66.50	67.00	67.50	
Buffalo W6	66.00	66.50	67.00	67.50	
Chester P2	66.50	67.00	67.50		
Chicago I4	66.00	66.50	66.50	67.00	
Cleveland A5	66.00	66.50	66.50	67.00	71.00†
Cleveland R3	66.00	66.50	66.50	67.00	
Duluth I4	66.00	66.50	66.50	67.00	71.00†
Eric I4	66.00	66.50	66.50	67.00	71.00†
Everett M6	66.00	66.50	67.00		
Fentona K1	74.00	74.50			
Genora, Utah C7	66.00	66.50			
Granite City G2	67.90	68.40	68.90		
Hubbard Y1			66.50		
Ironton, Utah C7	66.00	66.50			
Midland C11	66.00				
Minneapolis C6	66.00	68.50	69.00		
Monacaon P6	66.00				
Neville Ia. P4	66.00	66.50	66.50	67.00	71.00†
N. Tonawanda T1	66.00	66.50	67.00	67.50	
Sharpsville S3	66.00	66.50	66.50	67.00	
So. Chicago R3	66.00	66.50	66.50		
So. Chicago W8	66.00	66.50	66.50	67.00	
Swadland A2	66.00	66.50	66.50	67.00	
Toledo I4	66.00	66.50	66.50	67.00	
Troy, N. Y. R3	68.00	68.50	69.00	69.50	74.00
Youngstown Y1		66.50	67.00		

DIFFERENTIALS: Add, 75¢ per ton for each 0.25 pct silicon or portion thereof over base (1.75 to 2.25 pct except low phos., 1.75 to 2.00 pct) 50¢ per ton for each 0.25 pct manganese or portion thereof over 1 pct, \$2 per ton for 0.50 to 0.75 pct nickel, \$1 for each additional 0.25 pct nickel. Add \$1.00 for 0.31-0.60 pct phos. † Intermediate low phos. Add \$1.00 for 0.31 to 0.50 pct phos.
Silvery Iron: Buffalo (6 pct), H1, \$78.50; Jackson, J1, I4 (Globe Div.), \$77.25; Niagara Falls (15.01-15.50), \$101.00; Kankakee (14.01-14.50), \$103.50; (15.51-16.00), \$106.50. Add \$1.00 per ton for each 0.50 pct silicon over base (0.51 to 0.50 pct) up to 1.0 pct. Add \$1.25 for each 0.50 pct manganese over 1.00 pct. Baseomer silvery pig iron (under 1.0 pct phos.): \$64.00. Add \$1.00 premium for all grades silvery to 1.0 pct.

Product	201	202	301	302	303	304	316	321	347	403	410	416	430
Ingots, reroll.	22.00	23.75	23.25	25.25	—	27.00	39.75	32.25	37.00	—	16.75	—	17.00
Slabs, billets	27.00	27.00	28.00	31.50	32.00	33.25	49.50	40.00	46.50	—	21.50	—	21.75
Billets, forging	—	36.50	—	38.00	41.00	40.50	62.25	47.00	55.75	32.00	28.25	28.75	28.75
Bars, struct.	42.00	43.00	44.25	45.00	48.00	47.75	73.00	55.50	64.75	37.75	33.75	34.25	34.25
Plates	44.25	45.00	46.25	47.25	—	50.75	76.75	59.75	69.75	40.25	35.00	—	36.00
Sheets	48.50	49.25	51.25	52.00	—	55.50	81.50	65.50	79.25	—	40.25	—	40.75
Strip, hot-rolled	36.00	39.00	37.25	40.50	—	44.25	69.25	53.50	63.50	—	31.00	—	32.00
Strip, cold-rolled	45.00	49.25	47.50	52.00	—	55.50	81.50	65.50	79.25	48.25	40.25	—	40.75
Wire CF; Rod HR	—	40.75	42.00	42.75	45.75	45.50	69.50	52.50	61.50	36.00	32.25	32.75	32.75

STAINLESS STEEL PRODUCING POINTS:

Sheets: Midland, Pa., C11; Brackenridge, Pa., A3; Butler, Pa., A7; Vandergrift, Pa., U1; Washington, Pa., W2, J2; Baltimore, Md., M2; Middletown, O., A7; Massillon, O., R3; Gary, Ind., U1; Bridgeville, Pa., U2; New Castle, Ind., I2.

Strip: Midland, Pa., C11; Waukegan, Cleveland, A5; Carnegie, Pa., S9; McKeesport, Pa., F1; Reading, Pa., C2; Washington, Pa., W2; Leechburg, Pa., A5; Bridgeville, Pa., U2; Dunkirk, N. Y., A3; Massillon, O., R3; Harrison, N. J., D3; Youngstown, J3; Sharon, Pa., S1; Butler, Pa., A7; Wallingford, Conn., U3 (plus further conversion extras); W1; New Bedford, Mass. (1.25¢ per lb higher), R6; Gary, Ind. (1.25¢ per lb higher).

Bar: Baltimore, A7; S. Duquesne, Pa., U1; Munhall, Pa., U1; Reading, Pa., C2; Titusville, Pa., U2; Washington, Pa., J2; McKeesport, Pa., U1, F1; Bridgeville, Pa., U2; Dunkirk, N. Y., A3; Massillon, O., R3; S. Chicago, U1; Syracuse, N. Y., C11; Watervliet, N. Y., A3; Waukegan, A5; Canton, O., T3, R3; Ft. Wayne, Ind., I4; Philadelphia, D5; Detroit, R3; Gary, Ind., U1.

Wire: Waukegan, A5; Massillon, O., R3; McKeesport, Pa., F1; Ft. Wayne, Ind., I4; Harrison, N. J., D3; Baltimore, A7; Dunkirk, A3; Monacaon, P1; Syracuse, C11; Bridgeville, U2.

Structurals: Baltimore, A7; Massillon, O., R3; Chicago, Ill., J4; Watervliet, N. Y., A3; Syracuse, C11; S. Chicago, U1.

Plates: Brackenridge, Pa., A3; Chicago, U1; Munhall, Pa., U1; Midland, Pa., C11; New Castle, Ind., I2; Middletown, A7; Washington, Pa., J2; Cleveland, Massillon, R3; Coatesville, Pa., C15; Philadelphia, D5; Vandergrift, Pa., U1; Gary, Ind., U1.

Forging's billets: Midland, Pa., C11; Baltimore, A7; Washington, Pa., J2; McKeesport, F1; Massillon, Canton, O., R3; Watervliet, A3; Pittsburgh, Chicago, U1; Syracuse, C11; Detroit, R3; Munhall, Pa., S. Chicago, U1.

Same Old Story: Market Quiet

Dealers are trying to hold out until expected autumn upsurge in steel operations stirs up the market.

Some attempts to buy at lower prices meet with moderate success, but most prices hold.

■ The market continues to mark time, with the chief activity concerned with mill attempts to beat the price level down.

Mills have met with only minor success, chiefly in Chicago where some buys of openhearth grades were made at lower prices and railroad grades took a more significant drop.

In Pittsburgh, some less than representative broker buying at reduced figures was noted, although the basic price structure is unchanged.

In spite of some apparent weakness, no severe break in the market is likely. Dealers are not overloaded on scrap and most are confident of higher prices on the basis of predicted increases in mill operations this fall.

Export continues to hold up the East Coast market, with 75 to 80 pct of the Philadelphia scrap going out of the country.

Dealers in some markets can be persuaded to make small sales at market prices, occasionally taking a flyer at a minor order for even less than quoted levels. But they are unwilling to commit themselves on tonnage orders for anything less than present levels.

For this reason, the price structure is more firm than might be in-

dicated by small, short term sales.

Pittsburgh — Trading for most grades has come to a standstill. Mills show no interest in placing tonnage orders at current prices. Brokers and dealers say they don't want large orders at reduced prices. There has been scattered broker activity at lower figures. On a small order, brokers have been paying under mill prices. For tonnage orders, the stalemate continues.

Chicago — While dealer price levels slipped only slightly, Chicago mills again lowered their offering prices. The situation was confused by the continued movement of scrap out of the area, and old orders at stronger prices. The biggest slip came in rail grades, where mill refusals finally brought considerably reduced prices. The market continues to hold in No. 2 heavy melting despite lower offers.

Philadelphia — The market is quiet but firm. Only domestic activity in steelmaking grades was a small buy of No. 1 heavy melting for \$1 below previous levels. However this does not lower the market because: (1) The amount involved was too small; (2) Good export; (3) Mill is reported to have paid more than established price for No. 2 grades. Some turnings are off on appraisal. Railroad wheels and spring steel are up on the basis of lists.

New York — This market continues quiet, with very few price fluctuations. Export remains the major price prop. New freight rates 50¢ to 75¢ higher to consuming mills go into effect next week and may bring some adjustment.

Detroit — No major sales were made to local mills. One mill entered the market for small amounts of No. 1 bundles, new bushing and low phos at prevailing prices.

Cleveland — This market is momentarily dead and prices are down \$1 on appraisal. Some regular consumers in the Valley haven't bought scrap in 75 days and still show no inclination. Some other producers are transshipping scrap from big inventories.

St. Louis — Consumers of blast furnace grades have lowered their prices \$1 per ton. No. 1 railroad and stove plate are off \$2 and \$1 respectively. Otherwise, the market is strong and unchanged.

Birmingham — The market in this area continues in the doldrums with consumers buying only enough for immediate needs. Brokers say that although there is talk of a weaker market, purchases do not bear this out. Consumers are still paying going prices for most items, but refuse to raise them. Price of No. 2 heavy melting was incorrectly quoted in Aug. 15 issue. Correct price was \$39.00 to \$40.00.

Cincinnati — With shipments for the month completed, the market has taken on a sluggish tone. Prime steel grades are moving, but bundles and blast furnace grades are weak.

Buffalo — Prices remain unchanged in an inactive market. Dealers expect no major purchase and no price changes until next month. There still is no oversupply of good scrap.

Boston — This market continues very quiet. There is a little export, but only small local orders of small tonnage. Prices of No. 1 grades dropped off slightly, but there is no indication of a price break.

West Coast — Very little scrap is moving in Coast markets. Mill rejections are high and mills are accepting tonnage only from previous commitments. Prices are soft in all major West Coast cities. A price downswing may be in order.



Here's **HYDRO-MAGIC*** **"THREE-DIMENSION" BOOM ACTION** means **MORE PROFITABLE SCRAP HANDLING**

Ordinary crane booms swing right and left . . . move up and down. Bucyrus-Erie Hydrocranes give you all the advantages of ordinary boom action including use of boom hoist as an actual working function. In addition, Hydrocranes give you an added boom dimension — in and out action that lets you handle jobs an ordinary crane can't touch.

The hydraulic telescoping action of the Hydrocrane boom — 8 feet on the H-3 and 12 feet on the H-5 — enables it to reach through doorways and windows to make money for you on lifts that "two-dimension booms" could not get to.

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In addition to the busiest boom available today, you get truck mobility that gets the Hydrocrane through traffic in a breeze . . . over the roads at speeds up to 50 mph. Put the **HYDRO-MAGIC** of the 5-ton H-3 or the 10-ton H-5 Hydrocrane to work for you. It will boost your profits. Your Bucyrus-Erie distributor will be glad to supply full information.

* **HYDRO-MAGIC** describes the unusual abilities of the Hydrocrane. It is also the title of a new movie that dramatically demonstrates what the Hydrocrane can do. Your Bucyrus-Erie distributor will be glad to show it to you.

214H57

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BUCYRUS-ERIE COMPANY • SOUTH MILWAUKEE, WISCONSIN

SCRAP PRICES

(Effective Aug. 26, 1957)

Pittsburgh

No. 1 hvy. melting	\$55.00 to \$56.00
No. 2 hvy. melting	48.00 to 49.00
No. 1 dealer bundles	55.00 to 56.00
No. 1 factory bundles	63.00 to 64.00
No. 2 bundles	45.00 to 46.00
No. 1 busheling	55.00 to 56.00
Machine shop turn.	33.00 to 34.00
Mixed bor. and nos. turn.	33.00 to 34.00
Shoveling turnings	37.00 to 38.00
Cast iron borings	37.00 to 38.00
Low phos. punch'gs plate	63.00 to 64.00
Heavy turnings	49.00 to 50.00
No. 1 RR hvy. melting	62.00 to 63.00
Scrap rails, random lgth.	74.00 to 75.00
Rails 2 ft. and under	78.00 to 79.00
RR steel wheels	73.00 to 74.00
RR spring steel	73.00 to 74.00
RR couplers and knuckles	73.00 to 74.00
No. 1 machinery cast.	49.00 to 50.00
Cupola cast.	49.00 to 50.00
Heavy breakable cast.	47.00 to 48.00

Chicago

No. 1 hvy. melting	\$51.00 to \$52.00
No. 2 hvy. melting	44.00 to 45.00
No. 1 dealer bundles	52.00 to 53.00
No. 1 factory bundles	58.00 to 59.00
No. 2 bundles	39.00 to 41.00
No. 1 busheling	51.00 to 52.00
Machine shop turn.	33.00 to 34.00
Mixed bor. and turn.	35.00 to 36.00
Shoveling turnings	35.00 to 36.00
Cast iron borings	35.00 to 36.00
Low phos. forge crops	63.00 to 64.00
Low phos. punch'gs plate	59.00 to 60.00
Low phos. 3 ft. and under	57.00 to 58.00
No. 1 RR hvy. melting	57.00 to 59.00
Scrap rails, random lgth.	68.00 to 69.00
Revolving rails	74.00 to 75.00
Rails 2 ft. and under	73.00 to 74.00
Locomotive tires cut	62.00 to 63.00
Cut bolsters & side frames	62.00 to 64.00
Angles and splice bars	66.00 to 67.00
RR steel car axles	77.00 to 78.00
RR couplers and knuckles	62.00 to 63.00
No. 1 machinery cast.	53.00 to 54.00
Cupola cast.	48.00 to 49.00
Heavy breakable cast.	45.00 to 47.00
Cast iron brake shoe	48.00 to 49.00
Cast iron wheels	54.00 to 55.00
Malleable	62.00 to 63.00
Stove plate	46.00 to 47.00
Steel car wheels	63.00 to 64.00

Philadelphia Area

No. 1 hvy. melting	\$51.00 to \$52.00
No. 2 hvy. melting	45.00 to 46.00
No. 1 dealer bundles	52.00 to 53.00
No. 2 bundles	42.50 to 43.50
No. 1 busheling	52.00 to 53.00
Machine shop turn.	34.00 to 35.00
Mixed bor. short turn.	36.00 to 37.00
Cast iron borings	36.00 to 37.00
Shoveling turnings	37.00 to 38.00
Clean cast. chem. borings	43.00 to 44.00
Low phos. 5 ft. and under	57.00 to 58.00
Low phos. 2 ft. and under	58.00 to 59.00
Low phos. punch'gs plate	58.00 to 59.00
Elec. furnace bundles	56.00 to 57.00
Heavy turnings	47.00 to 48.00
RR steel wheels	67.00 to 68.00
RR spring steel	67.00 to 68.00
Rails 18 in. and under	71.00 to 72.00
Cupola cast.	46.00 to 47.00
Heavy breakable cast.	32.00 to 33.00
Cast iron car wheels	57.00 to 58.00
Malleable	61.00 to 62.00
Unstripped motor blocks	41.00 to 42.00
No. 1 machinery cast.	56.00 to 57.00

Cleveland

No. 1 hvy. melting	\$52.00 to \$53.00
No. 2 hvy. melting	44.00 to 45.00
No. 1 dealer bundles	52.00 to 53.00
No. 1 factory bundles	57.00 to 58.00
No. 2 bundles	40.00 to 41.00
No. 1 busheling	52.00 to 53.00
Machine shop turn.	24.00 to 25.00
Mixed bor. and turn.	29.00 to 30.00
Shoveling turnings	29.00 to 30.00
Cast iron borings	29.00 to 30.00
Cut struct'l & plates, 2 ft. & under	59.00 to 60.00
Drop forge flashings	52.00 to 53.00
Low phos. punch'gs plate	53.00 to 54.00
No. 1 RR hvy. melting	55.00 to 56.00
Rails 2 ft. and under	57.00 to 58.00
Rails 18 in. and under	74.00 to 75.00
Railroad grate bars	34.00 to 35.00
Steel axle turnings	32.00 to 33.00
Railroad cast.	55.00 to 56.00
No. 1 machinery cast.	54.00 to 55.00
Stove plate	49.00 to 50.00
Malleable	61.00 to 62.00

Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Youngstown

No. 1 hvy. melting	\$55.00 to \$56.00
No. 2 hvy. melting	47.00 to 48.00
No. 1 dealer bundles	55.00 to 56.00
No. 2 bundles	43.00 to 44.00
Machine shop turn.	30.00 to 31.00
Shoveling turnings	34.00 to 35.00
Cast iron borings	36.00 to 37.00
Low phos. plate	57.00 to 58.00

Buffalo

No. 1 hvy. melting	\$48.00 to \$49.00
No. 2 hvy. melting	39.00 to 40.00
No. 1 busheling	48.00 to 49.00
No. 1 dealer bundles	48.00 to 49.00
No. 2 bundles	35.00 to 36.00
Machine shop turn.	28.00 to 29.00
Mixed bor. and turn.	30.00 to 31.00
Shoveling turnings	34.00 to 35.00
Cast iron borings	31.00 to 32.00
Low phos. plate	55.00 to 56.00
Scrap rails, random lgth.	59.00 to 60.00
Rails 2 ft. and under	69.00 to 70.00
RR steel wheels	56.00 to 57.00
RR spring steel	52.00 to 53.00
RR couplers and knuckles	52.00 to 53.00
No. 1 machinery cast.	52.00 to 53.00
No. 1 cupola cast.	47.00 to 48.00

Detroit

Brokers buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$50.00 to \$51.00
No. 2 hvy. melting	40.00 to 41.00
No. 1 dealer bundles	50.00 to 51.00
No. 2 bundles	37.00 to 38.00
No. 1 busheling	48.00 to 49.00
Drop forge flashings	47.00 to 48.00
Machine shop turn.	26.00 to 27.00
Mixed bor. and turn.	29.00 to 30.00
Shoveling turnings	29.00 to 30.00
Cast iron borings	29.00 to 30.00
Low phos. punch'gs plate	48.00 to 49.00
No. 1 cupola cast.	48.00 to 49.00
Heavy breakable cast.	44.00 to 45.00
Stove plate	45.00 to 46.00
Automotive cast.	54.00 to 55.00

St. Louis

No. 1 hvy. melting	\$50.00 to \$51.00
No. 2 hvy. melting	47.00 to 48.00
No. 1 dealer bundles	50.00 to 51.00
No. 2 bundles	42.00 to 43.00
Machine shop turn.	33.00 to 34.00
Cast iron borings	35.00 to 36.00
Shoveling turnings	35.00 to 36.00
No. 1 RR hvy. melting	57.00 to 58.00
Rails, random lengths	66.00 to 67.00
Rails 18 in. and under	73.00 to 74.00
Locomotive tires uncut	59.00 to 60.00
Angles and splice bars	62.00 to 63.00
Sld. steel car axles	72.00 to 73.00
RR specialties	63.00 to 64.00
Cupola cast	49.00 to 50.00
Heavy breakable cast.	44.00 to 45.00
Cast iron brake shoes	43.00 to 44.00
Stove plate	45.00 to 46.00
Cast iron car wheels	51.00 to 52.00
Revolving rails	77.00 to 78.00
Unstripped motor blocks	44.00 to 45.00

Boston

Brokers buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$40.50 to \$41.50
No. 2 hvy. melting	35.00 to 36.00
No. 1 dealer bundles	40.50 to 41.50
No. 2 bundles	34.00 to 34.50
No. 1 busheling	40.50 to 41.50
Elec. furnace, 3 ft. & under	46.00 to 47.00
Machine shop turn.	25.00 to 26.00
Mixed bor. and short turn.	26.00 to 27.00
Shoveling turnings	27.00 to 28.00
Clean cast. chem. borings	30.50 to 31.50
No. 1 machinery cast.	40.00 to 41.00
Mixed cupola cast.	33.00 to 34.00
Heavy breakable cast.	42.00 to 43.00
Stove plate	32.00 to 33.00
Unstripped motor blocks	31.00 to 32.00

New York

Brokers buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$49.00 to \$50.00
No. 2 hvy. melting	42.00 to 43.00
No. 2 dealer bundles	38.00 to 39.00
Machine shop turn.	26.00 to 27.00
Mixed bor. and turn.	27.00 to 28.00
Shoveling turnings	29.00 to 30.00
Clean cast. chem. borings	34.00 to 35.00
No. 1 machinery cast.	46.00 to 47.00
Mixed yard cast.	41.00 to 42.00
Charging box cast.	46.00 to 47.00
Heavy breakable cast.	46.00 to 47.00
Unstripped motor blocks	39.00 to 40.00

Birmingham

No. 1 hvy. melting	\$49.00 to \$50.00
No. 2 hvy. melting	39.00 to 40.00
No. 1 dealer bundles	49.00 to 50.00
No. 2 bundles	35.00 to 36.00
No. 1 busheling	49.00 to 50.00
Machine shop turn.	39.00 to 40.00
Shoveling turnings	40.00 to 41.00
Cast iron borings	27.00 to 28.00
Electric furnace bundles	51.00 to 52.00
Elec. furnace, 3 ft. & under	49.00 to 50.00
Bar crops and plate	56.00 to 57.00
Structural and plate, 2 ft.	55.00 to 56.00
No. 1 RR hvy. melting	55.00 to 56.00
Scrap rails, random lgth.	64.00 to 65.00
Rails, 18 in. and under	69.00 to 70.00
Angles & splice bars	60.00 to 61.00
Revolving rails	77.00 to 78.00
No. 1 cupola cast.	54.00 to 55.00
Stove plate	54.00 to 55.00
Charging box cast.	37.00 to 38.00
Cast iron car wheels	46.00 to 47.00
Unstripped motor blocks	45.00 to 46.00

Cincinnati

Brokers buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$52.00 to \$53.00
No. 2 hvy. melting	45.00 to 46.00
No. 1 dealer bundles	51.00 to 52.00
No. 2 bundles	42.00 to 43.00
Machine shop turn.	33.00 to 34.00
Mixed bor. and turn.	30.00 to 31.00
Shoveling turnings	36.00 to 37.00
Cast iron borings	30.00 to 31.00
Low phos. 18 in. and under	59.00 to 60.00
Rails, random lengths	64.00 to 65.00
Rails, 18 in. and under	71.00 to 72.00
No. 1 cupola cast.	45.00 to 46.00
Hvy. breakable cast.	43.00 to 44.00
Drop broken cast.	55.00 to 56.00

San Francisco

No. 1 hvy. melting	\$47.00
No. 2 hvy. melting	45.00
No. 1 dealer bundles	46.00
No. 2 bundles	35.00
Machine shop turn.	32.00
Cast iron borings	\$30.00 to 32.00
No. 1 RR hvy. melting	47.00
No. 1 cupola cast.	53.00

Los Angeles

No. 1 hvy. melting	\$47.00
No. 2 hvy. melting	45.00
No. 1 dealer bundles	45.00
No. 2 bundles	35.00
Machine shop turn.	30.00
Shoveling turnings	32.00
Cast iron borings	32.00
Elec. furn. 1 ft. and under	
(foundry)	58.00
No. 1 RR hvy. melting	47.00
No. 1 cupola cast.	51.00

Seattle

No. 1 hvy. melting	\$47.00
No. 2 hvy. melting	\$43.00 to 45.00
No. 2 bundles	33.00
No. 1 cupola cast.	46.00
Mixed yard cast.	47.00

Hamilton, Ont.

No. 1 hvy. melting	\$50.00
No. 2 hvy. melting	45.00
No. 1 dealer bundles	50.00
No. 2 bundles	39.00
Mixed steel scrap	42.00
Busheling	26.00
Bush., new fact., prep'd.	50.00
Bush., new fact., unprep'd.	44.00
Machine shop turn.	22.00
Short steel turn.	30.00
Mixed bor. and turn.	24.00
Rails, re-rolling	56.00
Cast scrap	52.00

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Push 3c Tariff For Lead and Zinc

Senate Finance Committee passes 3c per lb tariff for lead and zinc.

It is a rider on a bill already passed by the House.

Observers still don't think U. S. producers will get a higher protective tariff in 1957.

Time has become the key factor for advocates of a higher protective tariff for lead and zinc. The latest move: The Senate Finance Committee has abandoned the administration's sliding scale tariff plan for a straight 3¢ per lb tariff on both lead and zinc. The new move will be attached as a rider to a finance bill already passed by the House.

The new plan sets the peril point for lead at 17¢ per lb, and zinc at 14.50¢ per lb. Below these points, the tariff would apply.

To Beat Adjournment—Many observers on Capitol Hill call the move a panic, caused by the impending close of this session of Congress. Producers had pretty well sifted out the myriad of bills and agreed on the sliding scale tariff (The IRON AGE, June 6, P. 154). Their primary strength lay in the Upper House of the legislature where mining states Senators were united in support of the measure.

However, tariff bills must originate in the House of Representatives. With adjournment only days away, it became apparent that none would in this session.

Little Chance—These observers say that the move to attach a rider to another bill does not increase chance of passage. They say that the House will not look kindly on

a tariff bill originating in the Senate, even as a rider, and will probably kill the whole bill in joint committee.

Besides, word is that the measure will be sent to the Interior and State Depts. for their opinions before hitting the Senate floor. The session could well be over before either of these render judgment.

It is still doubtful that the bill-with-rider will get past the Senate. Although it emerged by a 11 to 2 majority of the Senate Finance Committee, its opponents, Sen. Douglas (D., Ill.), and Sen. Gore (D., Tenn.) have pledged an all-out battle on the floor. With most Congressmen eager to go home, this could be enough to kill the bill-with-rider.

Aluminum

The Aluminum Assn. reports production of primary aluminum in the U. S. in July topped the previous month, but fell far short of matching July, 1956.

Production:

July, 1957—142,157 tons
June, 1957—138,007 tons
July, 1956—151,624 tons

The total domestic production for 1957 through July—966,285 tons is well below the 1,011,928 tons turned out in the same period in 1956.

Cease at E. St. Louis—Aluminum Co. of America has announced that it will cease producing alumina at its E. St. Louis, Ill., works on Nov. 1. This move emphasizes the fact that the company's key supply of bauxite will continue to come from the Caribbean area. The E.

St. Louis plant had been set up 54 years ago for Arkansas ore.

Copper

The Copper Institute reports world production of copper in July was definitely off from June. Deliveries to consumers were also off, while stock at the smelters followed the trend and headed up.

Production

July, 1957—239,176 tons
June, 1957—251,801 tons

Deliveries

July, 1957—203,917 tons
June, 1957—220,052 tons

Smelters' Stocks

July, 1957—430,230 tons
June, 1957—400,294 tons

Nickel

Another indication of an impending balance in the world supply and demand for nickel is the news that the British Board of Trade will turn loose 1600 tons of nickel pellets from its stockpile.

The metal will be sold for the government by the Mond Nickel Co., for consumption within the United Kingdom.

Tin prices for the week: Aug. 14—94.125; Aug. 15—94.625; Aug. 16—94.50; Aug. 19—94.50, Aug. 20—94.50.*

* Estimate

Primary Prices

(cents per lb)	Current price	last price	date of change
Aluminum Ingot	28.10	27.10	8/1/57
Aluminum pig	28.00	25.00	8/1/57
Copper (E)	28.50	28.25	8/8/57
Copper (CS)	28.25	26.50	7/22/57
Copper (L)	28.50	29.25	8/8/57
Lead, St. L.	13.80	14.80	8/11/57
Lead, N. Y.	14.00	15.00	8/11/57
Magnesium Ingot	36.00	34.00	8/13/56
Magnesium pig	35.25	33.75	8/13/56
Nickel	74.00	64.50	12/8/56
Titanium sponge	200-250	260-275	8/6/57
Zinc, E. St. L.	10.00	10.50	7/1/57
Zinc, N. Y.	10.80	11.00	7/1/57

ALUMINUM: 99% Ingot frt allwd. **COPPER:** (E) = electrolytic, (CS) = custom smelters, electrolytic. (L) = lake. **LEAD:** common grade. **MAGNESIUM:** 99.8% pig. Velasco, Tex. **NICKEL:** Port Colbourne, Canada. **ZINC:** prime western. **TIN:** see above; other primary prices, pg. 154.



SOLID BRASS REELS BY PENN FISHING TACKLE CO., PHILADELPHIA

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frame of mind. Care to let us prove what they say? Just ask a Sales Engineer.

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NONFERROUS PRICES (Effective Aug. 20, 1957)

MILL PRODUCTS

(Cents per lb unless otherwise noted)
(Base 20,000 lb, f.o.b. ship. pt., 1st. allowed)

ALUMINUM

Flat Sheet (Mill Finish) and Plate
(1/2" temper except 6061-0)

Alloy	032	081	136-249	250-3
1100, 3003	45.6	44.3	43.6	42.7
5052	54.0	48.9	47.2	45.4
6061-0	51.4	47.0	45.2	43.1

Extruded Solid Shapes

Factor	6063 T-5	6062 T-6
6-8	45.0-46.8	60.4-64.1
12-14	45.7-47.2	61.3-65.8
24-26	49.0-49.8	72.1-76.8
36-38	58.0-58.6	96.2-99.8

Screw Machine Stock—2011-T-3

Size*	3/4	5/8	1/2	3/8
Price	63.0	62.5	61.0	58.6

Roofing Sheet, Corrugated (Per sheet, 26" wide base, 16,000 lb)

Length*→	73	96	120	144
.019 gage	\$1.420	\$1.893	\$2.367	\$2.839
.024 gage	1.774	2.366	2.957	3.549

MAGNESIUM

(F.o.b. shipping Pt., carload frt. allowed)

Sheet and Plate

Type ↓	Gage →	250-3.00	250-2.00	.188	.081	.032
AZ31B Stand. Grade		67.9	69.0	77.9	108.1	
AZ31B Spec.		93.3	95.7	108.7	171.3	
Tread Plate		70.6	71.7			
Tooling Plate	73.0					

Extruded Shapes

Factor →	6-8	12-14	24-26	36-38
Comm. Grade (AZ31C)	69.6	70.7	75.6	89.2
Spec. Grade (AZ31B)	84.8	85.7	90.6	104.3

Alloy Ingot

AZ91B (Die Casting)	37.25 (delivered)
AZ63A, AZ62A, AZ91C (Sand Casting)	40.75 (Velsco, Tex.)

NICKEL, MONEL, INCONEL

(Base prices, f.o.b. mill)

"A" Nickel	Monel	Inconel
Sheet, CR	126	128
Strip, CR	124	126
Rod, bar, HR	107	109
Angles, HR	107	109
Plates, HR	120	121
Seamless tube	157	260
Shot, blocks	87	

COPPER, BRASS, BRONZE

(Freight included on 5000 lbs)

	Sheet	Wire	Rod	Tube
Copper	50.63		47.86	50.82
Brass, 70/30	44.02	44.56	45.34	46.93
Brass, Low	46.70	47.24	46.64	49.51
Brass, R L	47.64	48.18	47.58	50.45
Brass, Naval	48.19		42.50	51.60
Muntz Metal	46.29		42.10	
Comm. Br.	49.13	49.67	49.07	51.69
Mang. Br.	51.93		46.03	
Phos. Br. 5%	69.61		70.11	

Free Cutting Brass Rod 32.23

TITANIUM

(10,000 lb base, f.o.b. mill)

Sheet and strip, commercially pure, \$9.50-\$10.60; alloy, \$14.75; Plate, HR, commercially pure, \$8.00-\$8.75; alloy, \$10.75. Wire, rolled and/or drawn, commercially pure, \$7.50-\$8.00; alloy, \$10.00; Bar, HR or forged, commercially pure, \$6.15-\$6.40; alloy, \$6.15-\$6.35; billets, HR, commercially pure, \$6.00-\$6.25; alloy, \$6.00-\$6.20.

PRIMARY METAL

(Cents per lb, unless otherwise noted)

Antimony, American, Laredo, Tex. 33.50
Beryllium aluminum 5% Be, Dollar per lb contained Be \$74.75
Beryllium copper, per lb cont'd Be \$43.00
Beryllium 97% lump or beads, f.o.b. Cleveland, Reading \$71.50
Blamuth, ton lots \$ 2.25
Cadmium, del'd \$ 1.70
Calcium, 99.9%, small lots \$ 4.55
Chromium, 99.8% metallic basis \$ 1.31
Cobalt, 97-99% (per lb) \$2.00 to \$2.07
Germanium, per gm, f.o.b. Miami, Okla., refined \$39.50-\$53.50
Gold, U. S. Treas., per troy oz. \$35.00
Indium, 99.9%, dollars per troy oz. \$ 2.25
Iridium, dollars per troy oz. \$86 to \$89
Lithium, 98% \$11.00 to \$14.00
Magnesium, sticks, 100 to 500 lb 59.00
Mercury, dollars per 76-lb flask, f.o.b. New York \$252 to \$255
Nickel oxide sinter at Copper Cliff, Ont., contained nickel 71.25
Platinum, dollars per troy oz. \$23 to \$24
Platinum, dollars per troy oz. \$82 to \$87
Rhodium \$120.00 to \$125.00
Silver ingots (¢ per troy oz.) 90.875
Thorium, per kg. \$43.00
Uranium, normal per kg. \$40.00
Vanadium \$ 3.45
Zirconium sponge \$10.00

REMELTED METALS

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5 ingot
No. 115 29.50
No. 120 28.50
No. 123 27.00
80-10-10 ingot
No. 305 33.50
No. 315 31.50
88-10-2 ingot
No. 210 41.25
No. 215 37.50
No. 245 33.50
Yellow ingot
No. 405 24.00
Manganese bronze
No. 421 27.00

Aluminum Ingot

(Cents per lb del'd 30,000 lb and over)

95-5 aluminum-silicon alloys
0.30 copper max. 26.25-27.00
0.60 copper max. 26.00-26.50
Plaston alloys (No. 122 type) 24.25-26.00
No. 12 alum. (No. 2 grade) 22.75-23.50
108 alloy 23.25-24.00
195 alloy 25.75-26.75
13 alloy (0.60 copper max.) 25.00-26.50
AXS-679 23.25-24.00

Steel deoxidizing aluminum, notch bar granulated or shot

Grade 1—95-97 1/2%	24.50-25.50
Grade 2—92-95%	22.75-23.50
Grade 3—90-92%	21.75-22.50
Grade 4—85-90%	20.75-21.50

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add 1¢ per lb for shipments of 20,000 lb and over)

	Heavy	Turnings
Copper	25 1/4	24 1/4
Yellow brass	19 1/4	17 1/4
Red brass	22 1/4	21 1/4
Comm. bronze	23 1/4	22 1/4
Mang. bronze	17 1/4	16 1/4
Yellow brass rod ends	18 1/4	

Customs Smelters Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire	23 1/4
No. 2 copper wire	22
Light copper	19 1/4
*Refinery brass	21 1/4
Copper bearing material	20 1/4
*Dry copper content	

Ingot Makers Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire	23 1/4
No. 2 copper wire	22 1/4
Light copper	19 1/4
No. 1 composition	22
No. 1 comp. turnings	21 1/4
Hvy. yellow brass solids	16
Brass pipe	18 1/4
Radiators	17

Aluminum

Mixed old cast	14 1/4-15
Mixed new clips	17-17 1/2
Mixed turnings, dry	15-16

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Copper and Brass

No. 1 copper wire	20 1/4-21
No. 2 copper wire	19-19 1/2
Light copper	17-17 1/2
Auto radiators (unsweated)	13 1/4-14
No. 1 composition	18 1/2-19
No. 1 composition turnings	18-18 1/2
Cocks and faucets	14 1/4-15
Clean heavy yellow brass	12 1/2-13
Brass pipe	15 1/2-16
New soft brass clippings	16 1/2-16 3/4
No. 1 brass rod turnings	13 1/4-14 1/4

Aluminum

Alum. pistons and struts	5 1/2-6
Aluminum crankcases	11-11 1/2
1100 (2S) aluminum clippings	14-14 1/2
Old sheet and utensils	11-11 1/2
Borings and turnings	7-7 1/2
Industrial castings	11-11 1/2
2024 (24S) Clippings	12 1/2-13

Zinc

New zinc clippings	4-4 1/4
Old zinc	3-3 1/4
Zinc routings	1 1/4-2
Old die cast scrap	1 1/2-1 3/4

Nickel and Monel

Pure nickel clippings	85-90
Clean nickel turnings	70-75
Nickel anodes	85-90
Nickel rod ends	85-90
New Monel clippings	45-48
Clean Monel turnings	35-40
Old sheet Monel	44-45
Nickel silver clippings, mixed	21
Nickel silver turnings, mixed	18

Lead

Soft scrap lead	9 1/4-10
Battery plates (dry)	4 1/4-4 1/2
Batteries, acid free	2 1/4-3

Miscellaneous

Block tin	75-76
No. 1 powder	59-60
Auto babbitt	39-40
Mixed common babbitt	11-11 1/4
Solder joints	15 1/2-16
Siphon tops	42
Small foundry type	13-13 1/4
Monotype	13-13 1/4
Lino. and stereotype	12-12 1/4
Electrotype	11-11 1/4
Hand picked type shells	8-8 1/4
Lino. and stereo. dross	3 1/2-4
Electro. dross	3-3 1/4

IRON AGE

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

STEEL
PRICES(Effective
Aug. 20, 1957)

	BILLETS, BLOOMS, SLABS			PIL- ING	SHAPES STRUCTURALS			STRIP					
	Carbon Re-rolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton		Carbon	Hi Str. Low Alloy	Carbon Wide- Flange	Hot- rolled	Cold- rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy	Alloy Hot- rolled	Alloy Cold- rolled
EAST													
Bethlehem, Pa.			\$114.00 B3		5.325 B3	7.80 B3	5.325 B3						
Buffalo, N. Y.	\$77.50 R3, B3	\$96.00 R3, B3	\$114.00 R3, B3	6.225 B3	5.325 B3	7.80 B3	5.325 B3	4.925 R3, B3	7.15 S10	7.325 B3			
Phila., Pa.									7.70 P15				
Harrison, N. J.													15.05 C11
Consolidated, Pa.		\$101.00 A2	\$121.00 A2					4.975 A2	7.20 A2	7.325 A2			
New Bedford, Mass.									7.80 R8				
Johnstown, Pa.	\$77.50 B3	\$96.00 B3	\$114.00 B3		5.325 B3	7.80 B3							
Boston, Mass.									7.70 T8				16.40 T8
New Haven, Conn.									7.80 D1				
Baltimore, Md.									7.15 T8				15.05 T8
Phoenixville, Pa.					5.50 P2		5.50 P2						
Sparrows Pt., Md.								4.925 B3		7.325 B3			
Bridgeport, Wallingford, Conn.	80.50 N8	\$101.00 N8	\$114.00 N8						7.80 W1				
Pawtucket, R. I. Worcester, Mass.									7.70 N7 7.70 A5				15.40 N7 15.20 T8
MIDDLE WEST													
Alton, Ill.								5.125 L1					
Ashland, Ky.								4.925 A7					
Canton-Massillon, Dover Ohio		\$96.00 R3	\$114.00 R3, T3						7.15 G4		10.40 G4		14.85 C11
Chicago, Ill.	\$77.50 U1, R3	\$96.00 U1, R3,W8	\$114.00 U1, R3,W8	6.225 U1	5.275 U1, W8,P13	7.75 U1, Y1 6.525 W8	5.275 U1	4.925 W8, N4,A1	7.25 A1, T8, M8			8.10 W8, S9,I3	15.05 A1, S9, G4
Franklin Park, Ill. Evanston, Ill.													
Cleveland, Ohio									7.15 A5, J3			8.10 J3	
Detroit, Mich.			\$114.00 R5					5.925 G3, M2	7.25 M1,D1,D3 G3,P11	7.425 G3	10.80 G3, D2	8.10 G3	
Anderson, Ind.									7.15 G4		10.40 G4		
Duluth, Minn.													
Gary, Ind. Harbor, Indiana	\$77.50 U1	\$96.00 U1	\$114.00 U1, Y1		5.275 U1, J3	7.75 U1, J3	5.525 J3	4.925 U1, J3,Y1	7.15 Y1	7.325 U1, J3,Y1	10.50 Y1	8.10 U1, Y1	
Sterling, Ill.	\$77.50 N4				5.275 N4			5.925 N4					
Indianapolis, Ind.									7.30 J3				15.20 J3
Newport, Ky.												8.10 A9	
Middletown, Ohio													
Niles, Warren, Ohio Sharon, Pa.		\$96.00 S1, C10	\$114.00 C10,S1					4.925 R3, S1	7.15 R3,T4 S1	7.325 R3, S1	10.30 S1, R3	8.10 S1	15.05 S1
Pittsburgh, Pa. Midland, Pa. Butler, Pa. Aliquippa, Pa.	\$77.50 U1, P6	\$96.00 U1, C11,P6	\$114.00 U1, C11	6.225 U1	5.275 U1, J3	7.75 U1, J3	5.275 U1	4.925 P6	7.15 J3,B4, S7			8.10 S9	15.05 S9
Weirton, Wheeling, Folinsabee, W. Va.					5.275 W3			4.925 W3	7.15 W3,P3	7.325 W3	10.45 W3		
Youngstown, Ohio	\$77.50 R3	\$96.00 Y1, C10	\$114.00 Y1		5.425 Y1	7.75 Y1			7.15 R3,Y1, J3	7.325 U1, Y1	10.80 Y1	8.10 U1, Y1	15.05 J3 W8
WEST													
Fontana, Cal.	\$88.00 K1	\$105.50 K1	\$135.00 K1		6.025 K1	8.50 K1	6.225 K1	5.775 K1	9.90 K1				
Goova, Utah		\$96.00 C7			5.275 C7	7.75 C7							
Kansas City, Mo.					5.375 S2	7.85 S2		5.175 S2		7.875 S2		8.35 S2	
Los Angeles, Torrance, Cal.		\$105.50 B2	\$134.00 B2		5.975 C7, B2	8.45 B2		5.675 C7, B2				9.30 B2	
Minneapolis, Colo.					5.575 C6			6.025 C6	9.10 K1				
Portland, Ore.					6.025 O2								
San Francisco, Niles, Pittsburg, Cal.		\$105.50 B2			5.925 B2	8.40 B2		5.675 C7, B2					
Seattle, Wash.		\$109.50 B2			6.025 B2	8.50 B2		5.925 B2					
SOUTH													
Atlanta, Ga.					5.475 A8			5.125 A8					
Fairfield, Ala. City, Birmingham, Ala.	\$77.50 T2	\$96.00 T2			5.275 T2, R3,C16	7.75 T2		4.925 T2, R3,C16 5.325 C10		7.325 T2			
Houston, Lone Star, Texas		\$101.00 S2	\$119.00 S2		5.375 S2	7.85 S2		5.175 S2		7.875 S2		8.35 S2	

STEEL
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	SHEETS								WIRE ROD	TINPLATE†		BLACK PLATE
	Hot-rolled 18 ga. & byr.	Cold- rolled	Galvan- ized	Enamel- ing	Long Tone	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.	Hot-rolled 19 ga.	Coke* 1.25-lb. base box	Electro* 0.25-lb. base box	Hollows Enameling 29 ga.
EAST												
Bethlehem, Pa.												
Buffalo, N. Y.	4.925 B3	6.85 B3				7.275 B3	8.975 B3		6.15 W6	† Special coated mlg. terne deduct 50¢ from 1.25-lb. coke base box price. Can-making quality blackplate 55 to 128 lb. deduct \$2.20 from 1.25 lb. coke base box. * COKE: 1.50-lb. add 25¢. ELECTRO: 0.50-lb. add 25¢; 0.75-lb. add 65¢; 1.00-lb. add \$1.00. Differ- ential 1.00 lb./0.25 lb. add 65¢.		
Claymont, Del.												
Coatesville, Pa.												
Coateshock, Pa.	4.975 A2	6.10 A2				7.325 A2						
Harrisburg, Pa.												
Hartford, Conn.												
Johnstown, Pa.									6.15 B3			
Fairless, Pa.	4.975 U1	6.10 U1				7.325 U1	9.925 U1			\$10.15 U1	\$8.85 U1	
New Haven, Conn.												
Phoenicia, Pa.												
Sparrows Pt., Md.	4.925 B3	6.85 B3	6.60 B3			7.275 B3	8.975 B3	9.725 B3	6.25 B3	\$10.15 B3	\$5.85 B3	
Worcester, Mass.									6.45 A5			
Trenton, N. J.												
MIDDLE WEST												
Alton, Ill.									6.35 L1			
Ashland, Ky.	4.925 A7		6.60 A7	6.625 A7								
Canton-Mazon, Ohio			6.60 R3, R1									
Chicago, Joliet, Ill.	4.925 W8, A1					7.275 U1			6.15 A5, R3,W8, N4, K2			
Sterling, Ill.									6.25 N4, K2			
Cleveland, Ohio	4.925 R3, J3	6.05 R3, J3		6.625 R3		7.275 R3, J3	8.975 R3, J3		6.15 A5			
Detroit, Mich.	5.025 G3, M2	6.15 G3, 6.05 M2				7.375 G2	9.075 G3					
Newport, Ky.	4.925 A1	6.05 A1										
Gary, Ind. Harbor, Indiana	4.925 U1, 13,Y1	6.05 U1, 13,Y1	6.00 U1, 13	6.625 U1, 13,Y1	7.00 U1	7.275 U1, Y1,13	8.975 U1, Y1		6.15 Y1	\$10.05 U1, Y1	\$8.75 U1, Y1	7.50 U1, Y1
Granite City, Ill.	5.125 G2	6.25 G2	6.60 G2	6.625 G2							\$8.85 G2	7.60 G2
Eskono, Ind.			6.70 C9						6.25 C9			
Mansfield, Ohio		6.05 E2			7.00 E2							
Middletown, Ohio		6.05 A7	6.60 A7	6.625 A7	7.00 A7							
Niles, Warren, Ohio	4.925 R3, N3,S1	6.05 R3	6.60 R3	6.625 N3, S1	7.00 N3, S1	7.275 R3	8.975 S1, R3				\$8.75 R3	
Pittsburgh, Pa.	4.925 U1, J3,P6	6.05 U1, J3,P6	6.60 U1, J3	6.625 U1		7.275 U1, R3,J3	8.975 U1, J3	9.725 U1	6.15 A5, J3,P6	\$10.05 U1, J3	\$8.75 U1, J3	7.50 U1, J3
Butler, Pa.												
Donora, Pa.												
Aliquippa, Pa.												
Portsmouth, Ohio	4.925 P7	6.05 P7							6.15 P7			
Weirton, Wheeling, Follansbee, W. Va.	4.925 W3, W5	6.05 W3, F3,W5	6.60 W3, W5		7.00 W3, W5	7.275 W3	8.975 W3			\$10.05 W3, W3	\$8.75 W3, W3	7.50 W3
Youngstown, Ohio	4.925 U1, Y1	6.05 Y1		6.625 Y1		7.275 Y1	8.975 Y1		6.15 Y1			
WEST												
Fontana, Cal.	5.775 K1	7.30 K1				8.125 K1	10.275 K1			\$10.00 K1	\$9.50 K1	
Geneseo, Utah	5.025 C7											
Kansas City, Mo.									6.60 S2			
Los Angeles, Torrance, Cal.									6.95 B2			
Minneapolis, Colo.									6.60 C6			
San Francisco, Niles, Pittsburg, Cal.	5.625 C7	7.00 C7	7.35 C7						6.95 C7	\$10.00 C7	\$9.50 C7	
Seattle, Wash.												
SOUTH												
Atlanta, Ga.												
Fairfield, Ala.	4.925 T2, R3	6.05 T2	6.60 T2, R3						6.15 T2, R3	\$10.15 T2	\$8.85 T2	
Houston, Tex.									6.40 S2			

STEEL
PRICE(Effective
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Bethlehem, Pa.	
Buffalo, N. Y.	
Claymont, Del.	
Coatesville, Pa.	
Coateshock, Pa.	
Harrisburg, Pa.	
Milton, Pa.	
Hartford, Conn.	
Johnstown, Pa.	
Fairless, Pa.	
Newark, N. J.	
Camden, N. J.	
Bridgeport, Conn.	
Putnam, Conn.	
Wilmer, N. C.	
Sparrows Pt., Md.	
Palmer, W. Va.	
Readville, W. Va.	
Manassas, Va.	
Spring City, Tenn.	
Alton, Ill.	
Ashland, Ky.	
Canton, Ohio	
Chicago, Waukegan, Harvey, Ill.	
Cleveland, Ohio	
Detroit, Mich.	
Duluth, Minn.	
Gary, Ind.	
Crawford, Ind.	
Hammond, Ind.	
Granite City, Ill.	
Kokomo, Ind.	
Sterling, Ill.	
Niles, Warren, Ohio	
Pittsburgh, Pa.	
Donora, Pa.	
Portsmouth, Ohio	
Weirton, W. Va.	
Follansbee, W. Va.	
Youngstown, Ohio	
Fontana, Cal.	
Geneseo, Utah	
Kansas City, Mo.	
Los Angeles, Torrance, Cal.	
Minneapolis, Colo.	
San Francisco, Niles, Pittsburg, Cal.	
Seattle, Wash.	
Atlanta, Ga.	
Fairfield, Ala.	
Birmingham, Ala.	
Houston, Tex.	

STEEL PRICES

(Effective Aug. 20, 1957)

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

	BARS						PLATES				WIRE
	Carbon Steel	Reinforcing	Cold Finished	Alloy Hot rolled	Alloy Cold Drawn	Hi Str. H.R. Low Alloy	Carbon Steel	Flat Plate	Alloy	Hi Str. Low Alloy	
EAST											
Bethlehem, Pa.				6.475 B3	8.775 B3	7.925 B3					
Buffalo, N. Y.	5.425 R3,B3	5.425 R3,B3	7.30 R3,7.35 B5	6.475 B3,R3	8.775 B3,B5	7.925 B3	5.10 B3		7.20 B2	7.625 B2	7.65 W6
Claymont, Del.							5.70 P2		7.20 C4	7.625 C4	
Coatesville, Pa.							5.50 L4		7.20 L4	7.925 L4	
Coushock, Pa.							5.20 A2	6.175 A2	7.20 A2	7.625 A2	
Harrisburg, Pa.							5.80 P2	6.275 P2			
Milton, Pa.	5.575 M7	5.575 M7									
Hartford, Conn.			7.80 R3		9.075 R3	7.925 B3					
Johnstown, Pa.	5.425 B3	5.425 B3		6.475 B3			5.10 B3		7.20 B3	7.625 B3	7.65 B3
Fairless, Pa.	5.575 U1	5.575 U1		6.625 U1							
Newark, N. J.			7.75 W10 7.75 P10		8.95 W10 8.95 P10						
Bridgeport, Conn.	5.650 N8	5.650 N8	7.65 N8 7.85 W10 7.80 J3	6.550 N8	8.925 N8						
Putnam, Conn.											
Wilmanatic, Conn.											
Sparrows Pt., Md.		5.425 B3					5.10 B3		7.20 B3	7.625 B3	7.75 B3
Palmer, Worcester, Roadville, Mass.			7.85 B5,C14		9.075 A5,B5						7.95 A5, W6
Spring City, Pa.			7.75 K4		8.950 K4						
MIDDLE WEST											
Alton, Ill.	5.625 L1										7.85 L1
Ashland, Newport, Ky.							5.10 A7,A1		7.20 A1		
Canton, Massillon, Ohio			7.30 R3,R2	6.475 R3,T5	8.775 R3,R2, T5						
Chicago, Joliet, Waukegan, Ill.	5.425 U1,R3, W8,N4,P13	5.425 U1,R3, N4,P13	7.30 A5, W10,W8, B5,L2,N9	6.475 U1,R3, W8	8.775 A5, W10,W8 L2,N9,B5	7.925 U1, 6.675 W8	5.10 U1,A1, W8,I3	6.175 U1	7.20 U1,W8	7.625 U1, 7.40 W8	7.65 A5,R3, W8,N4, K2,W7
Harvey, Ill.											
Cleveland, Ohio	5.425 R3	5.425 R3	7.30 A5,C13		8.775 A5, C13	7.925 R3	5.20 R3,J3	6.175 J3		7.625 R3, J3	7.65 A5, C13
Detroit, Mich.	5.525 G3	5.775 G3	7.55 P3 7.50 P8,B5	6.475 R5 6.575 G3	8.775 R5 8.975 B5,P3, P8	8.825 G3	5.20 G3		7.35 G3		
Duluth, Minn.											7.65 A5
Gary, Ind. Harbor, Crawfordsville Hammond, Ind.	5.425 U1,I3, Y1	5.425 U1,I3, Y1	7.30 R3,M5, J3	6.475 U1,I3 Y1	8.775 R3,M4	7.925 U1, Y1	5.10 U1,I3, Y1	6.175 J3,I3	7.20 U1,Y1	7.625 U1, Y1,I3	7.75 M4
Granite City, Ill.							5.30 G2				
Kokomo, Ind.											7.75 C9
Sterling, Ill.	5.525 N4	5.525 N4					5.10 N4				7.75 K2
Niles, Warren, Ohio Sharon, Pa.			7.30 C10	6.475 C10,S1	8.775 C10	7.925 S1	5.10 R3,S1		7.20 S1	7.625 R3, S1	
Pittsburgh, Midland, Demora, Aliquippa, Pa.	5.425 U1,J3	5.425 U1,J3	7.30 A5,B4, R3,J3,C11, W10,S9,C8	6.475 U1,J3, C11	8.775 A5, W10,R3,S9, C11,C8	7.925 U1,J3	5.10 U1,J3	6.175 U1	7.20 U1,J3	7.625 U1,J3	7.65 A5, J3,P6
Portsmouth, Ohio											7.65 P7
Weirton, Wheeling, Follansbee, W. Va.							5.10 W5				
Youngstown, Ohio	5.425 U1,R3, Y1	5.425 U1,R3, Y1	7.30 A5,Y1, F2	6.475 U1,Y1	8.775 Y1,F2	7.925 U1,Y1	5.10 U1,R3, Y1		7.20 Y1	7.625 U1, R3,Y1	7.65 Y1
WEST											
Emeryville, Cal.	6.175 J5	6.175 J5		7.525 K1		8.625 K1	5.85 K1		7.95 K1	8.375 K1	
Fontana, Cal.	6.125 K1	6.125 K1					5.10 C7			7.625 C7	
Genoa, Utah											
Kansas City, Mo.	5.675 S2	5.675 S2		6.725 S2		8.175 S2					7.90 S2
Los Angeles, Torrance, Cal.	6.125 C7,B2	6.125 C7,B2	8.75 R3,P14	7.525 B2	10.65 P14	8.625 B2					8.60 B2
Minneapolis, Colo.	5.875 C6	5.875 C6					5.95 C6				7.90 C6
Portland, Ore.	6.175 O2	6.175 O2									
San Francisco, Niles, Pittsburg, Cal.	6.125 C7 6.175 B2	6.125 C7 6.175 B2				8.675 B2					8.60 C7,C6
Seattle, Wash.	6.175 B2,N6	6.175 B2				8.675 B2	6.00 B2		8.10 B2	8.525 B2	
SOUTH											
Atlanta, Ga.	5.625 A8	5.625 A8									7.85 A8
Fairfield, Ala. City, Birmingham, Ala.	5.425 T2,R3 C16	5.425 T2,R3, C16	7.90 C16		8.775 R3	7.925 T2	5.10 T2,R3			7.625 T2	7.65 T2,R3
Hampton, Ft. Worth, Lone Star, Tex.	5.675 S2	5.675 S2		6.725 S2		8.175 S2	5.20 S2 5.45 L3		7.30 S2	7.725 S2	7.90 S2

† Merchant Quality—Special Quality .35¢ higher.

STEEL PRICES (Effective Aug. 29, 1957)

Key to Steel Producers

With Principal Offices

- A1 Acme Steel Co., Chicago
A2 Alan Wood Steel Co., Conshohocken, Pa.
A3 Allegheny Ludlum Steel Corp., Pittsburgh
A4 American Cladmetals Co., Carnegie, Pa.
A5 American Steel & Wire Div., Cleveland
A6 Angel Nail & Chaplet Co., Cleveland
A7 Armco Steel Corp., Middletown, Ohio
A8 Atlantic Steel Co., Atlanta, Ga.
A9 Acme-Newport Steel Co., Newport, Ky.
B1 Babcock & Wilcox Tube Div., Beaver Falls, Pa.
B2 Bethlehem Pacific Coast Steel Corp., San Francisco
B3 Bethlehem Steel Co., Bethlehem, Pa.
B4 Blair Strip Steel Co., New Castle, Pa.
B5 Bliss & Laughlin, Inc., Harvey, Ill.
B6 Brook Plant, Wickwire Spencer Steel Div., Birdsboro, Pa.
C1 Calatip Steel Corp., Los Angeles
C2 Carpenter Steel Co., Reading, Pa.
C3 Central Iron & Steel Co., Harrisburg, Pa.
C4 Claymont Products Dept., Claymont, Del.
C5 Colorado Fuel & Iron Corp., Denver
C7 Columbia Geneva Steel Div., San Francisco
C8 Columbia Steel & Shifting Co., Pittsburgh
C9 Continental Steel Corp., Kokomo, Ind.
C10 Copperweld Steel Co., Pittsburgh, Pa.
C11 Crucible Steel Co. of America, Pittsburgh
C12 Cumberland Steel Co., Cumberland, Md.
C13 Cuyahoga Steel & Wire Co., Cleveland
C14 Compressed Steel Shifting Co., Readville, Mass.
C15 C. O. Carlson, Inc., Thorndale, Pa.
C16 Connors Steel Div., Birmingham
C17 Chester Blast Furnace, Inc., Chester, Pa.
D1 Detroit Steel Corp., Detroit
D2 Dearborn Div., Sharon Steel Corp.
D3 Driver Harris Co., Harrison, N. J.
D4 Dickson Weatherproof Nail Co., Evanston, Ill.
E1 Eastern Stainless Steel Corp., Baltimore
E2 Empire Steel Co., Mansfield, O.
F1 Firth Sterling, Inc., McKeesport, Pa.
F2 Fitzsimons Steel Corp., Youngstown
F3 Follansbee Steel Corp., Follansbee, W. Va.

- G2 Granite City Steel Co., Granite City, Ill.
G3 Great Lakes Steel Corp., Detroit
G4 Greer Steel Co., Dover, O.
H1 Hanna Furnace Corp., Detroit
I2 Ingersoll Steel Div., Chicago
I3 Inland Steel Co., Chicago
I4 Interlake Iron Corp., Cleveland
J1 Jackson Iron & Steel Co., Jackson, O.
J2 Jessop Steel Corp., Washington, Pa.
J3 Jones & Laughlin Steel Corp., Pittsburgh
J4 Joslyn Mfg. & Supply Co., Chicago
J5 Judson Steel Corp., Emeryville, Calif.
K1 Kaiser Steel Corp., Fontana, Cal.
K2 Keystone Steel & Wire Co., Peoria
K3 Koppers Co., Granite City, Ill.
K4 Keystone Drawn Steel Co., Spring City, Pa.
L1 Laclede Steel Co., St. Louis
L2 La Salle Steel Co., Chicago
L3 Lone Star Steel Co., Dallas
L4 Lukens Steel Co., Coatesville, Pa.
M1 Mahoning Valley Steel Co., Niles, O.
M2 McLouth Steel Corp., Detroit
M3 Mercer Tube & Mfg. Co., Sharon, Pa.
M4 Mid States Steel & Wire Co., Crawfordsville, Ind.
M5 Monarch Steel Div., Hammond, Ind.
M6 Mystic Iron Works, Everett, Mass.
M7 Milton Steel Products Div., Milton, Pa.
M8 Mill Strip Products Co., Evanston, Ill.
N1 National Supply Co., Pittsburgh
N2 National Tube Div., Pittsburgh
N3 Niles Rolling Mill Div., Niles, O.
N4 Northwestern Steel & Wire Co., Sterling, Ill.
N6 Northwest Steel Rolling Mills, Seattle
N7 Newman Crosby Steel Co., Pawtucket, R. I.
N8 Northeastern Steel Corp., Bridgeport, Conn.
N9 Nelson Steel & Wire Co.
O1 Oliver Iron & Steel Co., Pittsburgh
O2 Oregon Steel Mills, Portland
P1 Page Steel & Wire Div., Monaca, Pa.
P2 Phoenix Iron & Steel Co., Phoenixville, Pa.
P3 Pilgrim Drawn Steel Div., Plymouth, Mich.
P4 Pittsburgh Coke & Chemical Co., Pittsburgh
P5 Pittsburgh Screw & Bolt Co., Pittsburgh
P6 Pittsburgh Steel Co., Pittsburgh
P7 Portsmouth Div., Detroit Steel Corp., Detroit
P8 Plymouth Steel Co., Detroit
P9 Pacific States Steel Co., Niles, Cal.
P10 Precision Drawn Steel Co., Camden, N. J.
P11 Production Steel Strip Corp., Detroit
P13 Phoenix Mfg. Co., Joliet, Ill.
P14 Pacific Tube Co.
P15 Philadelphia Steel and Wire Corp.
R1 Reeves Steel & Mfg. Co., Dover, O.
R2 Reliance Div., Eaton Mfg. Co., Massillon, O.
R3 Republic Steel Corp., Cleveland
R4 Roebeling Sons Co., John A., Trenton, N. J.
R5 J. & L. Steel Co., Stainless Div.
R6 Rodney Metals, Inc., New Bedford, Mass.
R7 Rome Strip Steel Co., Rome, N. Y.
S1 Sharon Steel Corp., Sharon, Pa.
S2 Sheffield Steel Div., Kansas City
S3 Shenango Furnace Co., Pittsburgh
S4 Simonds Saw and Steel Co., Fitchburg, Mass.
S5 Sweet's Steel Co., Williamport, Pa.
S6 Standard Forging Corp., Chicago
S7 Stanley Works, New Britain, Conn.
S8 Superior Drawn Steel Co., Monaca, Pa.
S9 Superior Steel Corp., Carnegie, Pa.
S10 Seneca Steel Service, Buffalo
T1 Tonawanda Iron Div., N. Tonawanda, N. Y.
T2 Tennessee Coal & Iron Div., Fairfield
T3 Tennessee Products & Chem. Corp., Nashville
T4 Thomas Strip Div., Warren, O.
T5 Timken Steel & Tube Div., Canton, O.
T7 Texas Steel Co., Fort Worth
T8 Thompson Wire Co., Boston
U1 United States Steel Corp., Pittsburgh
U2 Universal-Cyclops Steel Corp., Bridgeville, Pa.
U3 Ulbrich Stainless Steels, Wallingford, Conn.
U4 U. S. Pipe & Foundry Co., Birmingham
W1 Wallingford Steel Co., Wallingford, Conn.
W2 Washington Steel Corp., Washington, Pa.
W3 Weirton Steel Co., Weirton, W. Va.
W4 Wheatland Tube Co., Wheatland, Pa.
W5 Wheeling Steel Corp., Wheeling, W. Va.
W6 Wickwire Spencer Steel Div., Buffalo
W7 Wilson Steel & Wire Co., Chicago
W8 Wisconsin Steel Div., S. Chicago, Ill.
W9 Woodward Iron Co., Woodward, Ala.
W10 Wyckoff Steel Co., Pittsburgh
W12 Wallace Barnes Steel Div., Bristol, Conn.
Y1 Youngstown Sheet & Tube Co., Youngstown, O.

PIPE AND TUBING

Base discounts (per) f.o.b. mills. Base price about \$200 per net ton.

STANDARD T. & C.	BUTTWELD												SEAMLESS							
	1/2 in.		3/4 in.		1 in.		1 1/4 in.		1 1/2 in.		2 in.		2 1/2 in.		3 in.		3 1/2 in.		4 in.	
	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.
Sparrows Pt. B3	3.25	+12.0	6.25	+8.0	9.75	+3.50	12.25	+2.75	12.75	+1.75	13.25	+1.25	14.75	+1.50						
Youngstown R3	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50						
Fontana K1	+8.25	+23.5	+5.25	+19.5	+1.75	+15.00	0.75	+14.25	1.25	+13.25	1.75	+12.75	3.25	+13.00						
Pittsburgh J3	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50	*9.25	+24.25	*2.75	+19.50	*0.25	+17.0
Alton, Ill. L1	3.25	+12.0	6.25	+8.0	9.75	+3.50	12.25	+2.75	12.75	+1.75	13.25	+1.25	14.75	+1.50						
Sharon M3	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50						
Fairless N2	3.25	+12.0	6.25	+8.0	9.75	+3.50	12.25	+2.75	12.75	+1.75	13.25	+1.25	14.75	+1.50						
Pittsburgh N1	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50	*9.25	+24.25	*2.75	+19.50	*0.25	+17.0
Wheeling W4	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50						
Youngstown Y1	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50	*9.25	+24.25	*2.75	+19.50	*0.25	+17.0
Indiana Harbor Y1	4.25	+11.0	7.25	+7.0	10.75	+2.50	13.25	+1.75	13.75	+0.75	14.25	+0.25	15.75	+0.50						
Lorain N2	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50	*9.25	+24.25	*2.75	+19.50	*0.25	+17.0
EXTRA STRONG PLAIN ENDS																				
Sparrows Pt. B3	7.75	+6.0	11.75	+2.0	14.75	2.50	15.25	1.25	15.75	2.25	16.25	2.75	16.75	1.50						
Youngstown R3	9.75	+4.0	13.75	1.0	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50						
Fairless N2	7.75	+6.0	11.75	+2.0	14.75	2.50	15.25	1.25	15.75	2.25	16.25	2.75	16.75	1.50						
Fontana K1	+3.75	0.25			3.25		3.75		4.25		4.75		5.25							
Pittsburgh J3	9.75	+4.0	13.75	1.0	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50	*7.75	+21.75	*0.25	+16.0	2.25	+13.50
Alton, Ill. L1	7.75	+6.0	11.75	+2.0	14.75	2.50	15.25	1.25	15.75	2.25	16.25	2.75	16.75	1.50						
Sharon M3	9.75	+4.0	13.75	1.0	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50						
Pittsburgh N1	9.75	+4.0	13.75	1.0	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50	*7.75	+21.75	*0.25	+16.0	2.25	+13.50
Wheeling W4	9.75	+4.0	13.75	1.0	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50						
Youngstown Y1	9.75	+4.0	13.75	1.0	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50	*7.75	+21.75	*0.25	+16.0	2.25	+13.50
Indiana Harbor Y1	8.75	+5.0	12.75	+1.0	15.75	3.50	16.25	2.25	16.75	3.25	17.25	3.75	17.75	2.50						
Lorain N2	9.75	+4.0	13.75	1.0	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50	*7.75	+21.75	*0.25	+16.0	2.25	+13.50

Threads only, butt-weld and seamless 2 1/4 pt. higher discount. Plain ends, butt-weld and seamless, 3-in. and under, 5 1/2 pt. higher discount. Galvanized discounts based on zinc price range of over 9¢ to 11¢ per lb. East St. Louis. For each 2¢ change in zinc, discounts vary as follows: 1 1/2, 1 1/4, 1 1/2 and 2-in. 1 1/2 pt.; 2 1/2 and 3-in., 1 pt.; e.g., zinc price range of over 13¢ to 15¢ would lower discounts on 2 1/2 and 3-in. pipe by 2 points; zinc price in range over 7¢ to 9¢ would increase discounts. East St. Louis zinc price now 10¢ per lb.

Effective Aug. 29, 1957

TOOL STEEL

F.o.b. mill	W	Cr
15	4	
18	4	
18	4	
18	4	
18	4	
18	4	
18	4	
18	4	
18	4	
18	4	

High-carbon
Oil harden
Special carb
Extra carb
Regular car
Warehouse
steel appl
are
100 lbs/100

CLAD STEEL

Cladding	302	304	316	321	347	405	410	430
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Substrate Type
302.....
304.....
316.....
321.....
347.....
405.....
410.....
430.....

CR Strl
40.25; 1 st

WAREHOUSE

40.25; 1 st

WAREHOUSE

40.25; 1 st

WAREHOUSE

40.25; 1 st

WAREHOUSE

40.25; 1 st

WAREHOUSE

40.25; 1 st

WAREHOUSE

40.25; 1 st

WAREHOUSE

40.25; 1 st

WAREHOUSE

40.25; 1 st

WAREHOUSE

40.25; 1 st

WAREHOUSE

40.25; 1 st

(Effective Aug. 20, 1957)

TOOL STEEL

F.o.b. mill	W	Cr	V	Mo	Co	per lb	SAE
18	4	1	—	—	—	\$1.68	T-1
18	4	1	—	—	6	2.85	T-4
18	4	2	—	—	—	1.18	T-9
1.5	4	1.5	8	—	—	1.04	M-1
1.5	4	3	6	—	—	1.43	M-2
6	4	3	5	—	—	1.185	M-3

High-carbon chromium... .82 D-3, D-5
Oil hardened manganese... .45 W-1
Special carbon... .41 W-1
Extra carbon... .345 W-1
Regular carbon... .29 W-1
Warehouse prices on and east of Mississippi are 4¢ per lb higher. West of Mississippi, 6¢ higher.

CLAD STEEL

Base prices, cents per lb f.o.b.

	Plate (A3, J2, L4)			Sheet (J2)
Cladding	10 pct	15 pct	20 pct	20 pct
302	—	—	—	37.50
304	37.95	42.25	46.70	40.00
316	44.40	49.50	54.50	58.75
321	40.85	44.60	49.30	47.25
347	42.40	47.55	52.80	7.00
405	29.85	33.35	36.85	—
410	29.55	33.10	36.70	—
430	29.80	33.55	37.25	—

CR Strip (S9) Copper, 10 pct, 2 sides, 40.25; 1 side, 33.95.

ELECTRICAL SHEETS

22-Gage F.o.b. Mill Cents Per Lb	Hot-Rolled (Cut Lengths)*	Cold-Reduced (Coiled or Cut Length)	
		Semi-Processed	Fully Processed
Field	—	9.625	—
Armature	11.10	10.85	11.35
Elect.	11.80	11.55	12.05
Hermetic	—	12.10	—
Motor	12.90	12.65	13.15
Dynamo	13.95	13.70	14.20
Trans. 72	15.00	—	15.25
Trans. 45	15.55	—	—
Grain Oriented			
Trans. 58	16.95	Trans. 80	19.20
Trans. 52	17.10	Trans. 73	19.70

Producing plants: Beech Bottom (W5); Brackenridge (A3); Granite City (G2); Indiana Harbor (I3); Mansfield (E2); Newport, Ky. (N5); Niles, O. (N3); Vandergrift (U1); Warren, O. (R3); Zanesville, Butler (A7).

LAKE SUPERIOR ORES

51.50% Fe natural content, delivered lower Lake ports. Prices for 1957 season. Freight changes for seller's account.

	Gross Ton
Openhearth lump	\$12.70
Old range, bessemer	11.85
Old range, nonbessemer	11.70
Mesabi, bessemer	11.60
Mesabi, nonbessemer	11.45
High phosphorus	11.45

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard Q Coated Nails	Woven Wire Fence	17" Fence Posts	Single Loop Bale Ties	Cable Backed and Twisted Barbed Wire	Merch. Wire Ann'd	Merch. Wire Galv
Alabama City R3	173	187	212	193	8.65	9.20	—
Aliquippa J3**	173	190	—	—	8.65	9.325	—
Atlanta A6**	175	—	208	199	8.50	9.10	—
Bartonville K2**	175	192	178	214	8.75	9.45**	—
Buffalo W6	—	—	—	—	8.65	9.95*	—
Chicago N4***	—	—	—	—	—	—	—
Cleveland A6	—	—	—	—	8.65	—	—
Cleveland A5	—	—	—	—	—	—	—
Crawf. dv. M4**	175	192	214	198	8.75	9.425	—
Donora, Pa. A5	173	187	212	193	8.65	9.20	—
Duluth A5	173	187	212	193	8.65	9.20	—
Fairfield, Ala. T2	173	187	212	193	8.65	9.20	—
Galveston D4	8.95	—	—	—	—	—	—
Houston S2	178	192	217	198	8.90	9.45	—
Jacksonville M4	184-1	197	219	203	9.00	9.675	—
Johnstown B3***	173	190**	172	196**	8.65	9.325**	—
Joliet, Ill. A5	173	187	212	193	8.65	9.20	—
Kokomo C9*	175	189*	214	195*	8.75	9.38*	—
L. Angeles B2***	—	—	—	—	9.60	10.275	—
Kansas City S2*	178	192*	217	198*	8.90	9.45*	—
Minnequa C61	178	192†	217	198†	8.90	9.45†	—
Monessen P6	—	—	—	—	193	8.65	9.20
Palmer, Mass. W6	—	—	—	—	8.95	9.50*	—
Pittsburg, Cal. C7	182	210	213	—	9.60	10.15	—
Ransom, Pa. A5	173	187	—	—	8.65	9.20	—
So. Chicago R3	173	187	—	—	193	8.65	9.20
S. San Fran. C61	—	—	236	—	9.60	10.15†	—
Sparrow Pt. B3**	175	—	214	198	8.75	9.425	—
Struthers, O. Y1*	—	—	—	—	8.65	9.30	—
Worcester A5	179	—	—	—	8.95	9.50	—
Williamsport S5	—	—	—	—	—	—	—

* Zinc less than .10%.
** 11-12% zinc.
*** .10% zinc.
† Plus zinc extras.
‡ Wholesalers only.

C-R SPRING STEEL

Cents Per Lb F.o.b. Mill	CARBON CONTENT				
	0.26-0.40	0.41-0.60	0.61-0.80	0.81-1.05	1.06-1.35
Baltimore, Md. T8	9.50	10.70	12.90	15.90	18.85
Bristol, Conn. W12	—	—	—	—	—
Boston T8	9.50	10.70	12.90	15.90	18.85
Buffalo, N. Y. R7	8.95	10.40	12.60	15.60	18.55
Carnegie, Pa. S9	8.95	10.40	12.60	15.60	18.55
Cleveland A5	8.95	10.40	12.60	15.60	18.55
Dearborn S1	9.05	10.50	12.70	—	—
Detroit D1	9.05	10.50	12.70	15.70	—
Detroit D2	9.05	10.50	12.70	—	—
Dover, O. G4	8.95	10.40	12.60	15.60	18.55
Evanston, Ill. M8	9.05	10.40	12.60	—	—
Franklin Park, Ill. T8	9.05	10.25	12.45	15.45	18.40
Harrison, N. J. C11	—	—	12.90	16.10	19.30
Indianapolis J3	9.10	10.55	12.60	15.60	18.55
Los Angeles	11.15	12.60	14.80	17.80	—
New Castle, Pa. B4	8.95	10.40	12.60	15.60	—
New Haven, Conn. D1	9.40	10.70	12.90	15.90	—
Pawtucket, R. I. N7	9.50	10.70	12.90	15.90	18.85
Pittsburgh S7	8.95	10.40	12.60	15.60	18.55
Riversdale, Ill. A1	9.05	10.40	12.60	15.60	18.55
Sharon, Pa. S1	8.95	10.40	12.60	15.60	18.55
Trenton R4	9.10	10.70	12.90	15.90	19.30
Wallingford, Wt.	9.40	10.70	12.90	15.90	18.75
Warren, Ohio T4	—	—	—	—	—
Worcester, Mass. A5	9.50	10.70	12.90	15.90	18.85
Youngstown J3	8.95	10.40	12.60	15.60	18.55

BOILER TUBES

\$ per 100 ft. rolled into cut 10 to 24 ft. F.o.b. Mill	Size		Seamless		Elec. Weld	
	OD-In.	B.W. Ga.	H.R.	C.D.	H.R.	C.D.
Babcock & Wilcox	2	13	36.34	42.56	33.21	—
	2 1/2	12	48.94	57.31	44.73	—
	3	12	56.51	66.18	51.66	—
	3 1/2	11	65.97	77.25	60.30	—
National Tube	2	13	36.34	42.56	33.21	—
	2 1/2	12	48.94	57.31	44.73	—
	3	12	56.51	66.18	51.66	—
	3 1/2	11	65.97	77.25	60.30	—
Pittsburgh Steel	2	13	36.34	42.56	—	—
	2 1/2	12	48.94	57.31	—	—
	3	12	56.51	66.18	—	—
	3 1/2	11	65.97	77.25	—	—

WARE-HOUSES

Cities	City Delivery Charge	Sheets				Strip	Plates	Shapes	Bars			Alloy Bars			
		Hot-Rolled (10 ga. & hr.)	Cold-Rolled (15 gage)	Galvanized (10 gage)††	Hot-Rolled				Standard Structural	Hot-Rolled (merch.)	Hot-Rolled (special quality)	Cold-Finished	Hot-Rolled 4015 As rolled	Hot-Rolled 4140 Annealed	Cold-Drawn 4015 As rolled	Cold-Drawn 4140 Annealed
Atlanta		8.50	9.87	10.13	8.64	8.97	9.05	9.01		10.68					
Baltimore	\$ 1.10	8.35	8.88	9.86	8.86	8.76	9.29	9.06	9.16	9.73	16.18	15.18	19.73	18.98	
Birmingham	.15	8.18	9.45	10.15	8.23	8.56	8.64	8.07	8.60	10.57					
Boston	.10	9.41	10.50	11.15	9.45	9.75	9.69	9.07	9.78		15.79	15.24	19.89	19.04	
Buffalo	.15	8.40	9.60	11.22	8.65	9.05	8.65	8.40	8.95	8.85	16.34	15.15	19.01	18.95	
Chicago	.15	8.35	9.60	10.15	8.38	8.71	8.79	8.07	8.75	8.95	15.80	14.65	19.35	18.40	
Cincinnati	.15	8.49	9.65	10.20	8.69	9.08	9.33	8.53	9.87	9.46	15.61	15.11	18.96	18.91	
Cleveland	.15	8.33	9.60	10.10	8.48	8.94	9.16	8.16	8.84	9.20	15.89	14.74	19.44	18.54	
Denver		9.70	11.30	12.49	9.80	9.70	9.80	9.95		10.65				17.60	
Detroit	.15	8.58	9.85	10.50	8.73	9.06	9.33	8.52	9.05	9.30	15.46	15.06	18.81	18.86	
Houston		8.45	9.75		8.60	9.05	9.10	9.05	9.05	11.10	16.20		19.30	19.05	
Kansas City	.20	8.52	9.72	10.07	8.60	8.83	8.87	8.73		9.42	15.32	14.77	18.72	18.42	
Los Angeles	.10	9.60	10.85	11.75	9.65	9.65	9.70	9.10	9.80	12.85	17.25	15.00	21.05	19.25	
Memphis	.15	8.62	9.22		8.12	8.35	8.39	8.25		9.85					
Milwaukee	.15	8.48	9.73	10.28	8.51	8.84	9.00	8.88	9.88	9.18	15.43	14.93	18.78	18.73	
New York	.10	8.97	10.23	10.66	9.42	9.53	9.45	9.48	9.67		15.02	15.19	18.42	18.99	
Norfolk	.20	8.00			8.40	8.35	8.70	8.45		10.70					
Philadelphia	.10	8.10	9.00	10.34	8.79	8.87	8.60	8.75	9.18	9.41	15.61	15.11	18.96	18.91	
Pittsburgh	.15	8.33	9.60	10.50	8.48	8.71	8.79	8.75	8.75	9.20	15.80	14.80	19.35	18.60	
Portland		9.50	11.20	11.55	11.35	9.30	9.65	9.65	9.65	14.65	18.50	16.10	20.75	20.25	
San Francisco	.10	9.45	10.85	11.10	11.05	9.70	9.60	9.80	9.80	13.10	17.05	15.50	21.05	19.60	
Seattle		9.95	11.15	12.00	10.00	9.70	9.80	10.10	9.85	14.05	16.55	15.85	20.65	19.45	
Spokane	.15	10.10	11.30	12.15	10.15	9.85	9.95	10.25	10.00	14.20		17.25	21.55	21.05	
St. Louis	.15	8.69	9.94	10.51	8.74	9.08	9.25	8.43	9.12	9.56	15.66	15.01	19.01	18.81	
St. Paul	.15	8.94	10.19	10.76	8.99	9.45	9.53	9.22	9.37	9.81		15.26		19.06	

Base Quantities (Standard unless otherwise keyed): Cold finished bars: 2000 lb or over. Alloy bars: 1000 to 1999 lb. All others: 2000 to 4999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may be combined with each other or with galvanized sheets for quantity.
†† 10¢ zinc. ‡ Deduct for country delivery

RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb.	No. 1 Std. Rail	Light Rail	Joint Bars	Track Spikes	Screw Spikes	Tie Plates	Track Bolts Unthreaded
Reasomer U/I	5.525	6.50	9.75				14.75
Cleveland R1							
So. Chicago R1	5.525	6.50	9.75				
Emley T2	5.525	6.50	9.75	5.60			
Fairfield T2	5.525	6.50	9.75	5.60			
Gary U/I	5.525	6.50	9.75	5.60			
Huntington C16	5.525	6.50	9.75	5.60			
Ind. Harbor I1	5.525	6.50	9.75	5.60			
Ind. Harbor Y1	5.525	6.50	9.75	5.60			
Johnstown B1	5.525	6.50	9.75	5.60			
Juliet U/I	5.525	6.50	9.75	5.60			
Kansas City S2	5.525	6.50	9.75	5.60			
Lackawanna B1	5.525	6.50	9.75	5.60			
Lebanon B1	5.525	6.50	9.75	5.60			
Minnequa C6	5.525	6.50	9.75	5.60			
Pittsburgh P3	5.525	6.50	9.75	5.60			
Pittsburgh J3	5.525	6.50	9.75	5.60			
Seattle B2	5.525	6.50	9.75	5.60			
Steeltown B3	5.525	6.50	9.75	5.60			
Stouthers Y1	5.525	6.50	9.75	5.60			
Torrence C7	5.525	6.50	9.75	5.60			
Williamsport S1	5.525	6.50	9.75	5.60			
Youngstown R1	5.525	6.50	9.75	5.60			

COKE

Furnace, beehive (f.o.b. oven) Net-Ton
Connellsville, Pa. \$15.00 to \$15.75
Foundry, beehive (f.o.b. oven)

Foundry oven coke	Price
Buffalo, del'd	\$31.75
Detroit, f.o.b.	30.50
New England, del'd	31.55
Kearney, N. J., f.o.b.	29.75
Philadelphia, f.o.b.	29.50
Sawdeland, Pa., f.o.b.	29.50
Painesville, Ohio, f.o.b.	30.50
Erie, Pa., f.o.b.	30.50
Cleveland, del'd	32.65
Cincinnati, del'd	31.84
St. Paul, f.o.b.	29.75
St. Louis, f.o.b.	31.50
Birmingham, f.o.b.	28.85
Milwaukee, f.o.b.	30.50
Neville, Is., Pa.	29.25

ELECTRODES

Cents per lb., f.o.b. plant, threaded, with
nipples, unboxed.

GRAPHITE			CARBON*		
Diam. In.	Length In.	Price	Diam. In.	Length In.	Price
24	84	24.75	40	100	10.70
20	72	24.00	35	110	10.70
16 to 18	72	24.50	30	110	10.85
14	72	25.00	24	72 to 84	11.25
12	72	25.50	20	90	11.00
10	60	26.50	17	72	11.40
10	48	27.00	14	72	11.85
7	60	26.75	12	60	12.95
6	60	30.00	10	60	13.00
4	40	33.25	8	60	13.30
3	40	35.25			
2 1/2	30	37.25			
2	24	57.75			

* Prices shown cover carbon nipples.

ELECTROPLATING SUPPLIES

Anodes
(Cents per lb., f.o.b. plant, threaded, with
nipples, unboxed.)

Copper	Price
Cast elliptical, 18 in. or longer, 5000 lb lots	45.75
Electrodeposited	37.00
Brass, 80-20, ball anodes, 2000 lb or more	48.00
Zinc, ball anodes, 2000 lb lots	18.00
(for elliptical add 2¢ per lb.)	
Nickel, 99 pct plus, rolled carbon, 5000 lb	102.25
(Rolled depolarized add 3¢ per lb.)	
Cadmium	1.70
Tin, ball anodes and elliptical \$1.07 per in.	
Chemicals	Price
Copper cyanide, 100 lb drum	74.80
Copper sulphate, 100 lb bags, per cwt.	24.35
Nickel salts, single, 100 lb bags	40.50
Nickel chloride, freight allowed, 300 lb	45.50
Sodium cyanide, domestic, f.o.b. N. Y., 200 lb drums	23.05
(Philadelphia price 23.30)	
Zinc cyanide, 100 lb	59.00
Potassium cyanide, 100 lb drum	
N. Y.	48.00
Chromic acid, flake type, 100,000 lb or more	31.00

BOLTS, NUTS, RIVETS, SCREWS

(Base discount, f.o.b. mill)
Pet. Discounts

Machine and Carriage Bolts	Full Case Price	30 Cans Price	20,000 Lb. Price	40,000 Lb. Price
1/2" and smaller x 6" and shorter	49	54	56	57
3/8" thru 1" x longer than 6"	35	40	43	45
Rolled thread carriage bolts 1/2" & smaller x 6" and shorter	49	54	56	57
Lag, all diam. x 6" & shorter	49	54	56	57
Lag, all diam. longer than 6 in.	39	44 1/2	47	48 1/2
Flow bolts, 1/2" & smaller x 6" and shorter	49	54	56	57

(Add 25 pct for broken case quantities)

Nuts, Hex, HP reg. & hvy.

	Reg. price
3/4 in. or smaller	60 1/2
3/4 in. to 1 in. inclusive	55 1/2
1 1/8 in. to 1 1/2 in. inclusive	58 1/2
1 3/8 in. and larger	53 1/2

C. P. Hex reg. & hvy.

3/4 in. and smaller	60 1/2
7/8 in. to 1 1/2 in. inclusive	55 1/2
1 5/8 in. and larger	53 1/2

Hot Galv. Hex Nuts (All Types)

3/4 in. and smaller	46 1/2
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Semi-finished Hex Nuts

$\frac{5}{8}$ in. or smaller	60 $\frac{1}{2}$
$\frac{3}{4}$ in. to 1 $\frac{1}{2}$ in. inclusive	55 $\frac{1}{2}$
1 $\frac{5}{8}$ in. and larger	53 $\frac{1}{2}$

(Add 25 pct for broken case or keg
quantities)

Finished

3/4 in. and smaller	63
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Rivets

	Base per 100 lb
1/2 in. and larger	\$12.25
	Pct. Off List
7/16 in. and smaller	19

Cap Screws

Discount (Packages)
Full Finished H. C. Heat Treat

New std. hex head, pack- aged	Discount	Full Finished H. C. Heat Treat
3/8" diam. and smaller x 6" and shorter	40	26
3/4", 1", and 1 1/4" diam. x 6" and shorter	22	3
3/8" diam. and smaller x longer than 6"	8	+13
3/4", 1", and 1 1/4" diam. x longer than 6"	+6	+32
		C-1018 Steel Full-Finished Cartons Bulk
1/4" through 5/8" dia. x 6" and shorter	58	49
3/4" through 1" dia. x 6" and shorter	45	33
Minimum quantity—1/4" through 5/8" diam., 15,000 pieces; 1/16" through 5/8" diam., 5,000 pieces; 3/4" through 1" diam., 2,000 pieces.		

Machine Screws & Stove Bolts

Plain Finish	Discount	Mach. Stove Screws Bolts
Cartons	19	32
Bulk		
To 1/4" diam. incl.	25,000-200,000	9 54
3/16 to 1/2" diam. incl.	25,000-200,000	9 54
All diam. over 3/8" long	5,000-100,000	— 54

Machine Screws & Stove Bolt Nuts

In Bulk	Discount	Hex Square
	16	19
3/4" diam. & smaller	15,000-100,000	7 9

CAST IRON WATER PIPE INDEX

Birmingham 19 1/2
New York 31 1/2
Chicago 34 1/2
San Francisco-L. A. 41 1/2
Dec. 1955 value, Class B or heavier
5 in. or larger, bell and spigot pipe. Ex-
planation: p. 57, Sept. 1, 1955, issue.
Source: U. S. Pipe and Foundry Co.

REFRACTORIES

Fire Clay Brick

	Carloads per 1000
First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add \$5.00)	\$15.00
No. 1 Ohio	120.00
Sec. Quality, Pa., Md., Ky., Mo., Ill.	120.00
No. 2 Ohio	101.00
Ground fire clay, net ton, bulk (except Salina, Pa., add \$2.00)	21.50

Silica Brick

Mt. Union, Pa., Ensley, Ala.	\$120.00
Childs, Hays, Pa.	135.00
Chicago District	160.00
Western Utah	175.00
California	180.00

Super Duty
Hays, Pa., Athens, Tex., Wind-
ham, Warren, O., Morrisville

Silica cement, net ton, bulk, Latrobe	157.00-160.00
Silica cement, net ton, bulk, Chi- cago	25.50
Silica cement, net ton, bulk, Ens- ley, Ala.	26.50
Silica cement, net ton, bulk, Mt. Union	24.50
Silica cement, net ton, bulk, Utah and Calif.	37.00

Chrome Brick

Standard chemically bonded, Balt.	\$105.00
Standards chemically bonded, Curt- ner, Calif.	115.00
Burned, Balt.	99.00

Magnesite Brick

Standard, Baltimore	\$131.00
Chemically bonded, Baltimore	116.00

Grain Magnesite

Domestic, f.o.b. Baltimore in bulk.	\$73.00
Domestic, f.o.b. Chewelah, Wash., Luning, Nev.	
in bulk	46.00
in sacks	52.00-54.00

Dead Burned Dolomite

F.o.b. bulk, producing points in:	
Pa., W. Va., Ohio	\$16.75
Midwest	17.00
Missouri Valley	15.00

METAL POWDERS

METAL POWDERS	
Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh	
Swedish sponge iron, del. East of Miss. River, ocean bags, 23,000 lb. and over	10.50
F.O.B. Riverton or Camden, New Jersey, West of Miss. River	9.50
Domestic sponge iron, 98+ % Fe, 23,000 lb. and over del'd East of Miss. River	10.50
F.O.B. Riverton, New Jersey, West of Miss. River	9.50
Canadian sponge iron, del'd in East, carloads	9.50
Electrolytic iron, annealed, imported 99.5+ % Fe	27.50
domestic 99.5+ % Fe	36.50
Electrolytic iron, unannealed minus 325 mesh, 99+ % Fe	57.00
Electrolytic iron melting stock, 99.84% pure	22.00
Carbonyl iron size 3 to 20 micron, 98%, 99.8+ % Fe, .88.0¢ to \$2.90	
Aluminum, freight allowed	38.00
Brass, 10 ton lots	37.4¢ to 41.5¢
Copper electrolytic	45.50
Copper, reduced	49.75
Cadmium, 100-199 lb. 95¢ plus metal value	
Chromium, electrolytic, 99.85% min. Fe. 03 max. Del'd	\$5.00
Lead	8.90¢ plus metal value
Manganese f.o.b. Extron, Pa.	46.40
Molybdenum, 99%	\$3.60 to \$3.95
Nickel, chemically precipitated	\$1.05
Nickel, unannealed	\$1.00
Nickel, annealed	\$1.06
Nickel, spherical, unannealed #80	\$1.13
Silicon	43.50¢
Solder powder, 7.0¢ to 9.0¢ plus met. value	
Stainless steel, 302	\$1.02
Stainless steel, 316	\$1.20
Tin	14.00¢ plus metal value
Tungsten, 99% (65 mesh) \$3.75 (nominal)	
Zinc, 10 ton lots	18.5¢ to 31.7¢

Ferroc

Cents per
carload, SI
max. SI
0.02% C
0.03% C
0.06% C
0.10% C
0.15% C
0.20-5.00%
SI
0.025% C
0.10% C
0.50% max
8.50% C
8.50% C

High Nit

Low-car
lb to re
max 0.10
each add

Chromium

Per lb
delivered,
Fe.
0.10% m
0.50% m
9 to 11%

Electroly

Per lb
(Metallic)
Carload
Ton lots
Less ton

Low Car

(Cr 24
Carload
per lb of
Carload
Ton lots
Less ton

Calcium

Per lb
30-33% C
Carload
Ton lots
Less ton

Calcium

Cents
packed,
16-20%
Carload
Ton lots
Less ton

SMZ

Cents
65% SI,
x 12 mesh
Ton lots
Less ton

V Found

Cents
pension
max. 90
SI, 8-11%
Carload
Ton lots
Less ton

Graphite

Cents
pension
max. SI
Ca 5 to
Carload
Ton lots
Less ton

Ferrom

Maxim
base cost

Produ

Marie
W. V.
Ore.
Johnsto
Sherida
Philo, C
S. Dug
Add
above c
Briq
Carload
Ton lots

FERROALLOY PRICES

(Effective Aug. 20, 1957)

Ferrochrome

Cents per lb contained Cr, lump, bulk, carloads, del'd. 67-71% Cr, 30-1.00% max. Si.			
0.02% C....	41.50	0.20% C....	38.50
0.03% C....	41.00	0.50% C....	38.25
0.05% C....	39.50	1.00% C....	37.50
0.10% C....	39.50	1.50% C....	37.35
0.15% C....	38.75	2.00% C....	37.25
4.00-4.50% C, 67.70% Cr, 1-2% Si...	27.75		
4.50-5.00% C, 57-64% Cr, 2.00-4.50% Si	26.50		
0.025% C (Simplex).....	34.75		
0.10% C, 50-52% Cr, 2% max Si....	35.50		
0.50% max. C, 50-55% Cr, 3-6% Si...	24.00		
8.50% C, 50-55% Cr, 3% max. Si...	24.00		

High Nitrogen Ferrochrome

Low-carbon type 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome max 0.10% C price schedule. Add 5¢ for each additional 0.25% of N.

Chromium Metal

Per lb chromium contained, packed, delivered, ton lots, 97% min. Cr, 1% max. Fe.	
0.10% max. C.....	\$1.31
0.50% max. C.....	1.31
9 to 11% C, 88-91% Cr, 0.75% Fe...	1.40

Electrolytic Chromium Metal

Per lb of metal 2" x D plate (1/4" thick) delivered packed, 99.80% min. Cr. (Metallic Base) Fe 0.20 max.	
Carloads.....	\$1.29
Ton lots.....	1.31
Less ton lots.....	1.33

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-45%, C 0.05% max.) Carloads, delivered, lump, 3-in. x down, per lb of Cr, packed.	
Carloads.....	44.65
Ton lots.....	48.95
Less ton lots.....	51.45

Calcium-Silicon

Per lb of alloy, lump, delivered, packed, 30-33% Cr, 60-65% Si, 3.00 max. Fe.	
Carloads.....	25.65
Ton lots.....	27.95
Less ton lots.....	29.45

Calcium-Manganese-Silicon

Cents per lb of alloy, lump, delivered, packed, 16-20% Ca, 14-18% Mn, 53-59% Si.	
Carloads.....	24.25
Ton lots.....	26.15
Less ton lots.....	27.15

SMZ

Cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe 1/2 in. x 12 mesh.	
Ton lots.....	20.15
Less ton lots.....	21.40

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, V-5; 38-42% Cr, 17-19% Si, 8-11% Mn, packed.	
Carload lots.....	17.20
Ton lots.....	18.70
Less ton lots.....	19.95

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.	
Carload packed.....	18.50
Ton lots to carload packed.....	19.65
Less ton lots.....	20.90

Ferromanganese

Maximum base price, f.o.b., lump size, base content 74 to 76 pct Mn.

Producing Point		Cents per-lb
Marietta, Ashtabula, O.; Alloy, W. Va.; Sheffield, Ala.; Portland, Ore.		12.75
Johnstown, Pa.		12.75
Sheridan, Pa.		12.75
Philo, Ohio		12.75
S. Duquesne		12.75
Add or subtract 0.1¢ for each 1 pct Mn above or below base content.		
Briquets, delivered, 68 pct Mn:		
Carloads, bulk.....	14.80	
Ton lots packed.....	17.20	

Spiegelisen

Per gross ton, lump, f.o.b. Palmerton, Pa.	
Manganese	Silicon
16 to 19%.....	3% max. ....\$100.50
19 to 21%.....	3% max. ....102.50
21 to 23%.....	3% max. ....105.00

Manganese Metal

2 in. x down, cents per pound of metal delivered.	
95.50% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe.	
Carload, packed.....	45.75
Ton lots.....	47.25

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, f.o.b. Marietta, O., delivered, cents per pound.	
Carloads.....	34.00
Ton lots.....	36.00
250 to 1999 lb.....	38.00
Premium for Hydrogen-removed metal.....	0.75

Medium Carbon Ferromanganese

Mn 80 to 85%, C 1.35 to 1.50, Si 1.50% max., carloads, lump, bulk, delivered, per lb of contained Mn.....	
	25.50

Low-Carb Ferromanganese

Cents per pound Mn contained, lump size, del'd Mn 85-90%.			
	Carloads	Ton	Less
0.07% max. C, 0.06% P, 90% Mn.....	37.15	39.95	41.15
0.07% max. C.....	35.10	37.90	39.10
0.10% max. C.....	34.35	37.15	38.35
0.15% max. C.....	33.60	36.40	37.60
0.30% max. C.....	32.10	34.90	36.10
0.50% max. C.....	31.60	34.40	35.60
0.75% max. C, 80.85% Mn, 5.0-7.0% Si....	28.60	31.40	32.60

Silicomanganese

Lump size, cents per pound of metal, 65-68% Mn, 18-20% Si, 1.5% max. C for 2% max. C, deduct 0.2¢ f.o.b. shipping point.	
Carloads bulk.....	12.80
Ton lots, packed.....	14.45
Briquet contract basis carloads, bulk, delivered, per lb of briquet.....	15.10
Ton lots, packed, pallets.....	16.50

Silvery Iron (electric furnace)

Si 15.50 to 16.00 pct, f.o.b. Keokuk, Iowa, or Wenatchee, Wash., \$106.50 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., \$93.00	
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Silicon Metal

Cents per pound contained Si, lump size, delivered, packed.		
	Ton lots, packed	Carloads, packed
96.75% Si, 1.25% Fe....	22.30	20.90
98% Si, 0.75% Fe....	22.95	21.65

Silicon Briquets

Cents per pound of briquets, bulk, delivered, 40% Si, 2 lb Si, briquets.	
Carloads, bulk.....	7.70
Ton lots, packed.....	10.50

Electric Ferrosilicon

Cents per lb contained Si, lump, bulk, carloads, f.o.b. shipping point.	
50% Si....	13.00
65% Si....	15.25
76% Si....	16.40
85% Si....	18.10
90% Si....	19.50

Ferrovandium

50-55% V delivered, per pound, contained V, carloads, packed.	
Openhearth.....	3.20
Crucible.....	3.30
High speed steel (Primor).....	3.40

Calcium Metal

Eastern zone, cents per pound of metal, delivered.			
	Cast	Turnings	Distilled
Ton lots.....	\$2.05	\$2.95	\$3.75
Less ton lots.....	2.40	3.30	4.55

Alisfer, 20% Al, 40% Si, 40% Fe. f.o.b. Suspension Bridge, N. Y., per lb.

Carloads.....	10.45¢
Ton lots.....	11.80

Calcium molybdate, 43.6-46.6% f.o.b. Langeloth, Pa., per pound Contained Mo.....	
	\$1.28

Ferrocolumbium, 50-50%, 2 in. x D, delivered per pound contained Cb.	
Ton lots.....	\$4.90
Less ton lots.....	4.95

Ferro-tantalum-columbium, 20% Ta, 40% Cb, 0.30% C, del'd ton lots, 2-in. x D per lb cont'd Sb plus Ta.....	
	\$4.25

Ferromolybdenum, 55-75%, 200-lb containers, f.o.b. Langeloth, Pa., per pound contained Mo.....	
	\$1.68

Ferrophosphorus, electric, 23-26%, car lots, f.o.b. Sigio, Mt. Pleasant, Tenn., \$4.00 unitage, per gross ton.....	
10 tons to less carload.....	\$90.00
	\$110.00

Ferrotitanium, 40% regular grade 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti.....	
	\$1.85

Ferrotitanium, 25% low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti.....	
	\$1.50
Less ton lots.....	\$1.54

Ferrotitanium, 15 to 18% high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload per net ton.....	
	\$240.00

Ferromanganese, 54 x 4 down packed, per pounds contained W, ton lots delivered.....	
	\$2.60 (nominal)

Molybdate oxide, briquets per lb contained Mo, f.o.b. Langeloth, Pa., bags, f.o.b. Washington, Pa. Langeloth, Pa.....	
	\$1.41

Simanal, 20% Si, 20% Mn, 20% Al, f.o.b. Philo, Ohio, freight allowed, per lb.	
Carload, bulk lump.....	18.50¢
Ton lots, packed lump.....	20.50¢
Less ton lots.....	21.00¢

Vanadium oxide, 86-89% V ₂ O ₅ , per pound contained V ₂ O ₅	
	\$1.38

Zirconium, per lb of alloy of alloy 35-40% f.o.b. freight allowed, carloads, packed.....	
	27.25¢
12-15%, del'd lump, bulk-carloads.....	9.25¢

Boron Agents

Borosil, per lb of alloy del. f.o.b. Philo, Ohio, freight allowed, B 3-4% Si 40-45%, per lb contained B.....	
2000 lb carload.....	\$5.50

Bortam, f.o.b. Niagara Falls, Ton lots per pound.....	
	45¢
Less ton lots, per pound.....	50¢

Corbortam, Ti 15-21%, B 1-2%, Si 2-4%, Al 1-2%, C 4-5-7.5%, f.o.b. Suspension Bridge, N. Y., freight allowed.	
Ton lots per pound.....	14.00¢

Ferroboron, 17.50 min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D, ton lots.....	
	\$1.30
F.o.b. Wash., Pa., Niagara Falls, N. Y., delivered 100 lb up.....	85
10 to 14% B.....	1.30
14 to 19% B.....	1.50
19% min. B.....	1.50

Grainal, f.o.b. Bridgeville, Pa., freight allowed, 100 lb and over No. 1.....	
	\$1.05
No. 79.....	50¢

Manganese-Boron, 75.00% Mn, 15.20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, del'd.....	
Ton lots.....	\$1.46
Less ton lots.....	1.57

Nickel-Boron, 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, del'd less ton lots.....	
	\$2.15

CONSIDER GOOD USED EQUIPMENT FIRST

BENDER & STRAIGHTENER

100 lb. Type JH-26 Bends & Straightens Beams 15x5.84
100 lb. Angles Equal 8x8 1/2", etc.

BENDING ROLLS

10' x 10' G. Bertsch Initial Type
10' x 1/4" King Pyramid Type—LATE
16' x 1/2" Hanson, Pyramid Type
18' x 1" Niles Pyramid Type
20' x 1" Hillis & Jones Pyramid Type

BRACKS—LEAF TYPE

8' x 3/16" Dreis & Krump
12' x 1/4" Dreis & Krump
12' x 1/2" Dreis & Krump No. 228

BRACKS—PRESS TYPE

12' x 1/2" Cincinnati
100 ton Pacific Hydr. Model #100-6 Overall width 8',
34" Horn Extension

CRANES—OVERHEAD ELECTRIC TRAVELING

3 ton P&H 56' Span 220/3/60
5 ton Whiting 48' Span 220/3/60 A.C.
5 ton Case 59' Span 220/3/25
8 ton P&H 55' Span 220/3/60
10 ton Shepard Niles 38' Span 440/3/60
13 ton Shepard Niles 52' Span 220 Volt D.C.
15 ton Shepard Niles 37' Span 220/440 A.C.
15 ton Shepard Niles 55' Span 220/440 A.C.
15 ton Niles 75' Span 220/3/60
20 ton P&H 57' Span 220/440 A.C.

DRAW BENCH

10x20x2 Standard Single Draw Tube Draw
Bench 44 Ft. Max. Length of Draw

FORGING MACHINES

10' x 17" Acetylene Ajax, National

LEVELERS—ROLLER

12' McKay 17 Rolls 2 1/2" dia. Backed Up
15' Actua 17 Rolls 3 1/2" dia.
16' Actua 17 Rolls 4 1/2" dia.

PLANNER—PLATE EDGE

35' Southwark, 16 Pne. Jacks, Capy. 1 1/2"

HAMMERS—BROAD DROP—STEAM DROP—STEAM

FORGING
800, 1600 lb. Chambersburg J-2
1200, 1500 lb. Chambersburg
2000 lb. Erie Type FV
2000 lb. Chambersburg Model E
2000, 2500 lb. Erie
3000 lb. Niles-Bement-Pond
4000 lb. Chambersburg
1100 lb. Erie Single Frame
1500 lb. Chambersburg Nels Fr
20,000 lb. Massey Arch Frame
48' x 48" Chambersburg
Coco Stamp

PRESSES—HYDRAULIC

1500 ton Mesta Steam Hydr. Forging Press
2000 ton Bliss Hydro-Dynamic, 18" Stroke Bed Area
54" x 55"
4500 Haldwin-Lima-Hamilton Hydr. Forging Press

PRESSES—STRAIGHT SIDE

100 ton Clearing F1100, 14" Str. Bed 36"x36"
180 ton Hamilton #847, 12" Str. 85 1/2" Bed. Up.
250 ton Bliss #88 12" Str. Bed 20"x20"
250 ton Bliss #81 7 1/2" Str. Bed 33x39"

PRESSES—TOGGLE DRAWING

2 1/2" Bliss 125 ton, Bolster 19" x 26"

PUNCH & SHEAR COMBINATIONS

Cleveland Style G Single End, 60" Throat
Cleveland Style W, 60" Throat
No. 1 1/2" Buffalo Universal Ironworker

ROLLING MILLS

6' x 5 1/2' Fortington Wire Flattening Mill Line
10' x 14" Single Stand Two High
10' x 16" Single Stand Two High
12' x 12" Single Stand Two High
12' x 16" Single Stand Two High
16' x 30" Farrel Two Stand Two High
36' x 72" Cold Rolling Mill

SHEAR—ALLIGATOR

No. 4 Mesta HLL LK, Capacity 2" x 12"
12' x 1/2" Niagara Model 1212, NEW 1951

SHEAR—GATE

36" Haldwin Shear Line Leveler, Classifier, etc.
60" Shear Line, With Leveler & Tables
96" x 14 Ga. Cleveland, With Payoff, Leveler, Eject.

SHEARS—SQUARING

8' x 10 Ga. Niagara No. 672
8' x 1/4" Niagara—NEW 1952
10' x 1/2" Cincinnati # 1810
10' x 1/2" Cincinnati #2510

SHEARS—ANGLE

4 1/2 x 1/2, Hillis & Jones
4 1/2 x 1/2" Long & Allstatter

SLITTERS

34" Voder Slitting Line
36" Paxon Slitting Line
42" Illinois, 4 1/2" Shaft Dia.

STRAIGHTENERS

No. 3 Medart 3 Roll, Capacity to 4 1/2" Tubing
Kane & Rosh Roll Straightener & Cut-off Capacities
7/16" to 1/2" Hex Bars

SWAGING MACHINES

24 Penn. Capacity 2 1/2" Tubing, LATE
45 1/2" Penn. Capacity 2 1/2" Tube 3 1/2" Solid 10"
Die Length Hydraulic Feed, LATE

WELDERS—SEAM

200 KVA Progressive Universal 220 Volt
400 KVA Federal Circular 440 Volt
500 KVA Federal Longitudinal 440 Volt

WIRE MACHINERY

22 Vaughn 12-Die Continuous Wire Drawing Machine, Capacity 14 to 27 B&S Ga.
4-Block Vaughn Wire Drawing Machine 22" Diameter Blocks

• Manufacturing

A. T. HENRY & COMPANY, INC.

50 CHURCH ST., NEW YORK CITY 8

Telephone COrtlandt 7-3437

• Equipment

Confidential Certified Appraisals

Liquidations — Bona Fide Auction Sales Arranged

CHECK THIS PARTIAL LIST OF HIGH GRADE TOOLS

100 KVA Taylor Winfield portable spot welder, practically new
50 KW Selasky Dynatrol automatic cycle press type spot welder
7 1/2" National high duty air clutch forging and upsetter
4" National high duty upsetting and forging machine, late (2)
3" x 3/4" Ajax upsetting and forging machine, steel frame
3" National high duty upsetter, air clutch
3" Ajax upsetter, air clutch
1 1/2" National upsetting and forging machine, hardened ways (2)
0/16" National precision thread rolling machine, M.D. late
Economy Type R automatic threading or pointing machine, (1948) (2)
36" Rockford specialized universal shaper planer, mechanical
10 1/2" x 10 1/2" No. 3 Metch & Merryweather cold saw
10' x 10" Racine hydraulic Shear-Cut metal saw
No. 1-L Kane & Roach vertical type horizontal shaft bending roll
No. 18 Kane & Roach straightening roll
750 ton No. 3 National Maxipress, air clutch, new 1945
60 ton Henry & Wright high speed dieing press
56 ton U-50 Niagara steel frame solid knee punch press
60 ton No. 800 B Perkins OBI press, new 1950
800 ton Model 2E-48-800 Hamilton straight side single crank, air clutch
250 ton Williams White & Co. four post upward working hydraulic press
150 ton HPM Hydro-Power Fastravers hydraulic press
350 ton No. 187 Cleveland slant crank double action toggle drawing press
260 ton No. 700 1/2-72 Toledo double crank toggle drawing press
200 ton 7-72" Bliss double crank straight side tiered frame press
126 ton Model 60-D-66 Cleveland straight side double crank tiered frame single geared press
808 ton No. 564 Toledo tiered frame knuckle joint coining press
400 ton No. EQ 54 Ferracute upward working coining press
60 ton No. 805 General Flexible power and straightening press
30' x 30' x 50" Cincinnati Hypro 2 rail, one right hand side head, dial feed plater
Economy type K-6 automatic belt head shaving and pointing machine
48" Newton two spindle continuous rotary mill
Hull Planetary thread and circular form machine

Ask for your list No. 206.

MILES MACHINERY CO.

PHONE SAGINAW PL 2-3105

2041 E. GENESEE AVE., SAGINAW, MICH.

W & W No. 2 Hyd. Tube Bender.

Cinn. 6' x 1/4" Brake, New.

Eastman 14" Comparator with gear analyzer, floor type, 1954.

Cinn. 10' x 3/8" Shear, 1937.

D. E. DONY MACHINERY CO.

4357 St. Paul Blvd. Rochester 17, N. Y.

2000# Chambersburg Pneumatic Forging Hammer Late Type, Serial 20CH392L7.

4000 lb. Chambersburg Double Frame Steam Forg. Hammer

2500 lb. Erie Single Leg Steam Forg. Hammer

No. 7 Ajax Forging Press, 700-ton capacity

3—2-ton Danison Auto. Hopper Feed & Index Table Hydr. Multipress

25 Transformer and Generating Arc Welders

2500 lb. Model E Chambersburg Steam Drop Hammer, New 1944

6' x 10 ga. Cincinnati Squaring Shear 1/4" x 8" Paxto Gate Shear; 20" throat

4" National High Duty Upsetting & Forging Machine, air clutch, also one with regular clutch, also 1", 2", 3" air clutch

Williams White Bulldozers from 5-ton to 300-ton

Landis Landmaco and other Landis Threading Machines

Single & Double End Punches

No. 3 Metch & Merryweather Saw, with Saw Grinder

Conomatic, 4 Spin. Cap. 1 1/2" Rd.

BOLT, NUT AND RIVET MACHINERY.

COLD HEADERS, THREAD ROLLERS.

THREADING MACHINES, TAPPERS.

COLD BOLT TRIMMERS, SLOTS.

HOT HEADERS AND TRIMMERS, COLD AND HOT PUNCH NUT MACHINES.

DONAHUE STEEL PRODUCTS CO.

1919 W. 74th Street, Chicago 36, Ill.

BENNETT MACHINERY CO.

500 TON NILES WHEEL PRESSES

(2) Late Type 800 ton Wheel Presses, 90" between bars; max. die, ram and resistance head 9 1/2" wgt. each 65,000 lbs.
(1) 35" Ohio Drednought Shaper, M. D.

375 Allwood Rd., Clifton, New Jersey
Phone: PRescott 9-8996 N. Y. Phone: LOngacre 3-1222

Consulting Engineering Service
Surplus Mfg. Equipment Inventories Purchased

REBUILT—GUARANTEED ELECTRICAL EQUIPMENT SLIP RING MOTORS

Constant Duty—3 phase, 60 cycle						
Qu.	H.P.	Make	Type	Volts	R.P.M.	
1	2500	Whise.	CW	4600/2300	720	
1	2500	G. E.	Mill	2300	240	
1	1800	Whise.	Mill	6600/1000	270	
2	1800	Whise.	Mill	2300	252	
2	500	Al. Ch.	ARY	2300	505	
1	500	G. E.	I-M	2300	450	
1	400	Al. Ch.	ARY	2300	505	
1	400	Whise.	CW	2200	290	
1	250	G. E.	I-M 15B	2200	1180	
1	250	G. E.	MT-112	2200	450	
1	200	Whise.	CW 1012	2200	720	
1	250	Al. Ch.	ARY	440	705	
1	250	G. E.	MT-114	2200	300	
1	200	G. E.	I-M	2200	1760	
1	200	G. E.	I-17-M	2200	585	
1	200	G. E.	I-14-M	2200	490	
1	150	Al. Ch.	ARY	440/220	720	
1	150	Whise.	CW	4160/2300	585	
1	150	Whise.	CW-1000	440	435	
1	100	Whise.	CW	440/220	1160	
1	100	Ed. Mch.	80	440/220	720	
2	100	G. E.	MT-562	110/220	570	
2	100	G. E.	I-15A-M	2300	195	
1	100	Al. Ch.	ARY	440	430	

SYNCHRONOUS MOTORS 3 Phase, 60 Cycle

Qu.	H.P.	Make	P.F.	Volts	R.P.M.	
1	1750	G. E.	100	2200	3600	
1	1500	G. E.	80	2400/4150	900	
1	1500	Whise.	80	2300	514	
1	920	G. E.	80	2200/440	300	
1	710	G. E.	80	2300	720	
1	450	Whise.	100	2200	128.5	
3	350	G. E.	100	2200	900	
1	300	G. E.	100	2300	720	
1	300	G. E.	80	2200	600	
2	300	G. E.	80	440	400	
2	250	Whise.	80	440	660	
1	200	Al. Ch.	100	2200	514	
1	200	Al. Ch.	100	2300	360	
1	150	G. E.	100	2200	900	
1	150	Ed. Mch.	80	220	720	
1	150	G. E.	100	550	600	
3	135	G. E.	80	4000/2200	1200	
1	125	G. E.	80	2200	900	
2	100	Whise.	80	440/220	1800	
1	100	Ideal	80	440/220	900	
2	100	G. E.	80	110/220	600	
1	100	Ed. Mch.	100	440/220	360	
2	50	G. E.	80	2200	600	

T. B. MAC CABE COMPANY

4302 Clarissa St., Philadelphia 40, Penna.

Cable Address: "Macsteel" Philadelphia, Pa. Phone: Davenport 4-8300

Compressor, 5HP Brunner 150# Tank Mounted
Leveler, 3" x 30" Fessler Backed Up Type
Metallograph, B&L Mills, 5" x 8" Camera
Riveter, 50 Ton Hanna Hyd., 8"R x 16"G 10 HP
Rolling Mill, 20" x 30" United 2HI, RLR BG
Rolling Mill 4" x 8" Standard 061, RLR BG
Rolling Mill 4" x 5" Std Grading, RLR BG

F. H. CRAWFORD & COMPANY
30 Church Street New York 7, N. Y.

THE CLEARING HOUSE

- 1—28" x 40" HOT STRIP MILL, 2-high, reversing with 2500 HP D.C. motor, etc.
- 2—28" 3-HIGH ROLL STANDS with inlet, outlet and intermediate tables. Will produce 4" sq. billets from 8" sq. blooms in 6 passes. Includes bloom shear.
- 1—28" REVERSING BREAKDOWN MILL.
- 1—25" & 42" x 60" HOT STRIP MILL, 4-high.
- 1—28" PINION STAND, 2-high, modern design.
- 1—10" x 10" 2-HIGH COLD MILLS, combination pinion stand and gear, extra forged steel rolls.
- 1—16" BAR MILL, 3-high, 4-stands, with speed reducer.
- 1—10" ROD MILL.
- 1—9" bar mill, 3-high.
- 1—COIL BUILD-UP LINE. Capacity strip 36" max. width by 250" max. thickness.
- 1—34" x 192" ROLL GRINDER with motors and controls.
- 1—44" ROLL LATHE, enclosed headstock, tailstock, swing rest, 20 HP 500/1500 RPM, 230 volts D.C. motor and controls.
- 1—ROLLER LEVELER, McKay, rolls 80" face & 5 1/4" dia. with gear box and universal spindles.
- 1—ROLLER LEVELER, 42" McKay, backed-up.
- 1—STRETCHER LEVELER for sheets, 500,000 lb.

- 1—KANE & ROACH BAR AND ANGLE STRAIGHTENER, size 25 cap. 4" x 4" x 1/2" angles, 5" channels 2 1/2" bars.
- 2—KANE & ROACH BAR AND ANGLE STRAIGHTENER, size 24, cap. 3" x 3" x 5/8" angles, 3 1/2" channels and 2" bars.
- 1—LOCOMOTIVE, 62 1/2 ton Diesel Electric.
- 2—UNITED HOT SAWS, 50", sliding frame.
- 1—BONNET BILLETERE, size "A" cap. 3" to 6" Squares.
- 1—UNITED #4 BAR SHEAR vertical open side.
- 1—PALS BILLET AND BAR SHEAR cap. 2" round, 50 HP motor.
- 1—ROTARY SIDE TRIMMING SHEAR, capacity 112" x 5/8" plate.
- 1—192" x 10 GAUGE NIAGARA SQUARING SHEAR, little used.
- 1—156" x 1/4" SHEET SQUARING SHEAR.
- 1—SLITTING SHEAR FOR SHEETS, Mesta 92".
- 1—TANDEM SLITTING AND CUT-TO-LENGTH LINE, heavy duty, max. opening for 38" wide.
- 1—MORGAN INGOT STRIPPER CRANE, 50' span, 200 tons capacity, 230 volts D.C.
- 1—ALLIANCE LADLE CRANE, 4 girders, 30 ton main hoist, 25 ton auxiliary, 55'3" span, 42' lift.

- 1—CORRUGATING MACHINE, Stames, for 12' wide sheets, including several sets of removable dies.
- 1—DRAWBENCH, Mesta, oil-hydraulic, for 3 strands of bars 20' long.
- 2—PICKLING MACHINES for sheets, Mesta.
- 1—SCRUBBER AND DRYER for sheets 66" wide.
- 2—60-TON CAPACITY HOLDING FURNACES, electric, each with 7500 KVA transformer.
- 2—PACK FURNACES for hot sheet mills, 62" x 66", double chamber.
- 1—15-TON ELECTRIC MELTING FURNACE, top charge.
- 1—60" GALVANIZING LINE for sheets, with 2 roller levelers.
- 1—GAS PRODUCER PLANT, Wellman-Galusha.
- 1—3500 HP GEAR DRIVE, 514 to 80 RPM, 6.45 to 1 ratio.
- 1—1000 HP GEAR DRIVE, 514 to 87 RPM, 5.9 to 1 ratio.
- 1—1200 HP GEAR DRIVE, 353 to 94.6 RPM, 3.73 to 1 ratio.
- 1—3500 HP MOTOR, 11000 volts, 3 phase, 60 cycle, 514 RPM.
- 1—1200 HP MOTOR, 2200 volts, 3 phase, 60 cycle, 353 RPM.

FRANK B. FOSTER, INC.

2220 Oliver Building, Pittsburgh 22, Pa.
cable: "Foster, Pittsburgh" Telephone ATlantic 1-2780

RE-NU-BILT GUARANTEED ELECTRIC POWER EQUIPMENT DC MOTORS

Qu.	H.P.	Make	Type	Volts	RPM
1	2000	Elliot		475	320
1	2250	Elliot		600	200/360
1	2200	G.E.	MCP	600	400/500
1	1750	Elliot		250	175/350
1	1375	G.E.	MCP	415	1300
1	1200	G.E.	MCP	600	550/600
1	910	Whose	QM	250	140/170
3	450	Whose		550	415
2	300	G.E.	ATPC	220	480
2	200	Whose	CB-207.4	250	850/1200
1	150	G.E.	CDHB	600	250/700
1	150	Cr. Wh.	65-H	230	1150
1	125	Whose	SK-185	230	350/1050
1	125	Whose	SK-180	250	850
2	100	Whose	SK-181	230	450/1000
1	60/100	G.E.	HP-17	230	450/900
2	75	Cr. Wh.	53HTEPC	230	860
1	50	G.E.	MD-412-AE	230	550
6	40	Rel.	385HTEPC		
2	20/40	Whose	SK-131.5-BB	230	500/1500
3	(unused) 30 G.E.		CRM-85-RR	230	2200

M.G. SETS—3 Ph. 60 Cy.

Qu.	K.W.	Make	RPM	Volts	AC Volts
2	2000/2400	G.E.	450	250/300	2300/4000
1	2000	G.E.	500	25 cy.	660
1	2000	G.E.	514	600	2300/4000
2	1000	G.E.	720	600	6600/13200
1	750	G.E.	720	125/250	2300/4000
1	500	Whose	900	125/250	440
2	300	G.E.	1200	250	2300
1	300	Whose	1200	275	440/2300
1	250	Whose	1200	275	2300
1	200	El. Ma.	1200	250	2300/4000
1	200	Whose	1200	550	2300
1	200	G.E.	1200	250	440

TRANSFORMERS

Qu.	KVA	Make	Type	Ph.	Voltages
3	3323	Whose	OISC	1	13800 x 2300
1	3000	A.C.	OISC	3	33000 x 2300
1	1500	G.E. auto	HT	2	4000/1200/4100
3	1000	G.E.	HVDDJ	1	2400 x 480
3	1000	G.E.	OA/FA	1	12800 x 230/460
1	823	G.E.	H	1	13800 x 460
2	750	G.E.	Pyralol	1	4800 x 83/55
3	500	Kuhl	OISC	1	12200 x 6000
3	500	Kuhl		1	4800/2100 x 210/480
1	300	G.E.	HT	3	4160 x 180/277
3	200	Al. Ch.	OISC	1	2300 x 230/460
3	150	G.E.		1	33000 x 2300/4000Y

BELEYA COMPANY, INC.

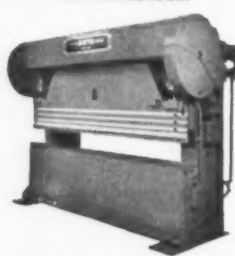
47 Howell Street, Jersey City 6, N. J.

FORGING PRESS

1200 Ton UNITED Steam hydraulic - very good condition 48" stroke—6' R to L. Complete with intensifier and valve gear. Available immediately.

ADDRESS BOX G-596
Care The Iron Age, Chestnut & 56th Sts., Phila. 38

IMMEDIATE DELIVERY BRAND NEW CYRIL BATH (STURDYBENDER)



POWER PRESS BRAKES

- #100- 8 8' x 3/16" 10' Bed
- #100-10 10' x 8 GA. 12' Bed
- #120-10 10' x 3/16" 12' Bed
- #150- 8 8' x 5/16" 10' Bed
- #150-10 10' x 1/4" 12' Bed

Purchasers of Cyril Bath Brakes are entitled to services of a factory representative to assist and supervise installation, and instruct personnel in operation and maintenance. NO CHARGE FOR THIS SERVICE.

PRESS & SHEAR MACHINERY CORP.

2600 EAST TIOGA STREET
PHILA. 34, PA. GARfield 6-8840
WILL LEASE WITH OPTION
TO PURCHASE, OR
WILL FINANCE OVER LONG TERM

BENKART STEEL & SUPPLY COMPANY CORAOPOLIS, PENNSYLVANIA AMherst 4-1250

Dealers in new and used OET Cranes and Structural Steel Buildings.
Send us your inquiries.

EXTRUSION PRESS

1450 Ton Lowey Hydropress Extrusion Press for Extruding 6" Dia. x 26" Long Billets.

TIPPINS MACHINERY COMPANY

1001 Washington Blvd. Pittsburgh 6, Pa.
EMerson 1-3400

TOTAL OF 17,500-KW IN M.G. SETS

- 5—3500-KW, 3 Unit, Allis-Chalmers, Motor Generator Sets. Each consisting of:
- 2—1750-KW, 250/350 Volts parallel, 500/700 Volt series, 514 RPM, 5000 Amp., type HCC, rated continuous at 40 Deg. C. Allis-Chalmers DC Generators with Class B insulation, separately excited, direct connected in the center to:
- 1—5000-H, 3730-KW, 13800 Volts (6900 volts), 3 Phase, 60 cycle, 514 RPM, 162 Amps. Allis-Chalmers Synchronous Motor with Class B insulation, rated continuous at 40 Deg. C. Rise.

Each set equipped with a 40-KW exciter for synchronous motor fields, and a 10-KW exciter for generator fields, both 250-VDC at 514 RPM.
All mounted on a structural steel base approximately 27' long x 11' wide.
These Units are of the very latest type and design—condition excellent—were used only a short time—AC and DC Switchgear available. For any additional information and price, please contact one of the following dealers closest to you:

T. B. MacCabe Company
4300 Clarissa Street, Philadelphia 40, Pa.
Moorhead Electric Machinery Co.
120 Noblestown Road, Oakdale (Pittsburgh District) Pennsylvania
Brazos Engineering Co., Inc.
P. O. Box 9114, Houston, Texas
Duquesne Electric & Mfg. Co.
6428 Hamilton Avenue, Pittsburgh 6, Pa.

One Type 6 4233 CU Hevi-Duty Bill Furnace and Equipment. 125 KW, 440 V 3 Phase 60 Cycle with Inconel Refractories 50" ID x 70" High. 2100°F Operating Temperature. New March 1955.

One 240 KW, 3 Phase 60 Cycle, 440 Volt Continuous Special Atmosphere Wire Mesh Belt Conveyor Type Electric Heating Furnace. Inside Clearance 18" High x 4'3" Wide, 2040°F Operating Temperature. New October 1955.

One 3000 CFH Electric Furnace Co. Ammonia Dissociator Unit Complete with Controls. New 1955.

These almost new furnaces are available at considerable savings. For further information write

BOX G-588
Care The Iron Age, Chestnut & 56th Sts., Phila. 38

Used Steel Mill Equipment For Sale

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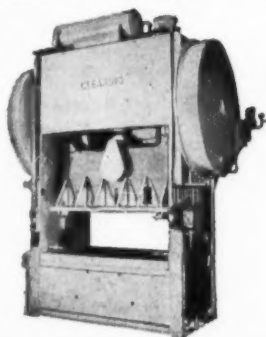
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Moltrup Steel

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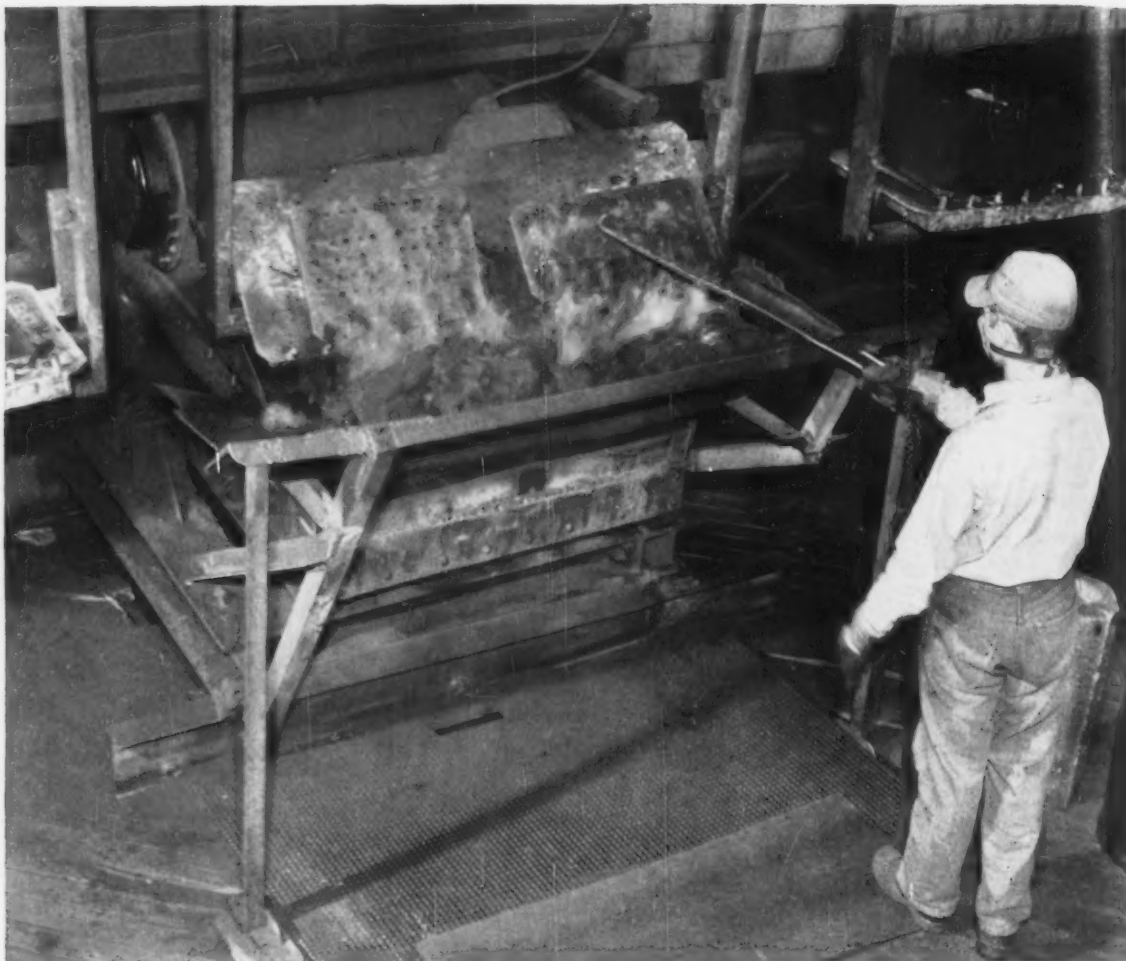
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ACCURATELY ROLLED FOR
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B.F. Goodrich report:



Searing hot sand burned out belt in 3 months

B. F. Goodrich improvements in rubber brought extra savings

Problem: At this foundry the sand shaken from those red-hot castings drops on an under-the-floor conveyor belt and is on its way to being used again. But the extremely hot sand baked the belt hard, made it crack and break. The belt needed constant repairs, had to be replaced every three months.

What was done: When a B.F. Goodrich salesman heard of the problem, he suggested a new belt, called Solarflex, specially designed by B.F. Goodrich engineers to handle hot materials. This

belt is made of a special rubber that stays soft and pliable at temperatures that cause other belts to harden, crack and finally break down.

Savings: The B.F. Goodrich Solarflex belt has now given more than 1½ years of troublefree service—five times that of previous belts—and still shows no sign of wear. In fact, the plant superintendent says he expects at least two more years' use from the belt.

Where to buy: Your B.F. Goodrich distributor has the exact specifications on the belt that solved the problem in

this foundry. And, as a factory-trained specialist in rubber products, he can answer your questions about *all* the rubber products B.F. Goodrich makes for industry. B.F. Goodrich Industrial Products Company, Department M-130, Akron 18, Ohio.

B.F. Goodrich

INDUSTRIAL PRODUCTS



A SLIGHTLY FANTASTIC Success Story...

Lee Wilson Single Stack Annealing Furnaces outsell all others 10 to 1

Most steelmakers can remember when it was believed that multiple stack annealing was the answer to greater production. But little more than a decade ago, Lee Wilson engineers developed high connection annealing and found the best medium of this high-speed method to be the single stack furnace.

At first, steelmakers were reluctant to accept a smaller furnace. However, production figures and quality checks proved the single stack high

convection system vastly superior to old style methods, and soon all leading steel producers were experimenting with pilot installations.

Today, the single stack is outselling multiples all along the line—and Lee Wilson is outselling all others 10 to 1. The answer is simple. The single stack has proved itself to be a better annealing method and, Lee Wilson, the originator, naturally knows more about single stacks than any other manufacturer.



Lee Wilson

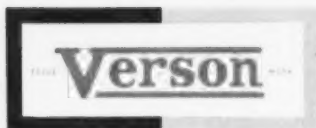
ENGINEERING
COMPANY, INC.

SINGLE STACK RADIANT TUBE ANNEALING FURNACES

MAKE THE BEST METALS BETTER

ORIGINATORS AND LEADING PRODUCERS OF SINGLE STACK RADIANT TUBE FURNACES

Another



PRODUCTION PROCESS

Engineered and Developed by Verson to Make Manufacturing More Profitable

•The relentless pressures exerted on production management for higher quality and lower costs for all fabricated metal products make the job of tooling or retooling a plant more than just the selection of machines and accessories.

In presses, for example, it has always been Verson's belief that to build a press isn't enough. What the press can be made to do is what is important. The press must be an integral part of a production process.

This philosophy has been responsible for many important developments by Verson. Not the least of these have been processes for the automatic

production of multi-operation stampings. This has been accomplished by means of both the Transmat (single press) concept and the automated press line concept.

As a manufacturer of both Transmat and automated press line processes and related tooling, Verson is well qualified to assist you in high production automatic stamping problems. For specific recommendations send an outline of your requirements.

VERSON ALLSTEEL PRESS COMPANY

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Here is a good example of what Verson engineering can do in automated press lines . . . and this is no theoretical concept . . . it is a tried and proven production process which has been in operation for over one year.

Three Verson Eccentric Presses (1500, 200 and 600 tons respectively from right to left in the photograph) are synchronized with automatic transfer and feeding equipment. The part is an automotive transmission drive housing.

